University of Minnesota
Office of Physical Planning
September 1990

Armory Remodeling

Facility Program

Minneapolis Campus

ARMORY RENOVATION
University of Minnesota
Minneapolis Campus
Project No. 011-89-2020

FACILITY AND SITE DEVELOPMENT PROGRAM

September 1990

G. M. Donhowe, Senior Vice President
for Finance and Operations

Clinton N. Hewitt, Associate
Vice President for Physical Planning

Lawrence G. Anderson
Director of Physical Planning

BUILDING ADVISORY COMMITTEE

David J. Dean
Michaeleen Fox
Steve Peabody, Chairperson
Marvin D. Trout
Robert P. Wainscott

OFFICE OF PHYSICAL PLANNING

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HISTORICAL AND GENERAL BACKGROUND

The Armory at the University of Minnesota is home to the Departments of Military Science, Naval Science, and Aerospace Studies--Army, Navy, and Air Force Reserve Officer Training Corps (ROTC) programs. The Armory has hosted the ROTC programs at the University since 1896. In recent years, the Department of Continuing Education has also maintained office space in the Armory.

The Armory is one of the most historically significant buildings on the University of Minnesota campus. It was the eleventh building constructed on the Minneapolis campus and is listed on the National Register of Historic Places maintained by the United States Department of the Interior. The Minnesota Historical Society maintains all records relating to the Armory's status as a historical landmark.

A great deal of the history of the University of Minnesota is linked with the Armory. From 1896 to 1925 the Armory was the social and athletic hub of the University. VIP's were welcomed at the Armory, commencements were held there, and many important social events, from formal dances to circuses, were staged there. It was the home of University athletic teams for decades. The tradition of the Little Brown Jug began at the Armory. The famous jug was found by Armory employee Oscar Munson following a 1903 Minnesota-Michigan football game. When Munson proposed returning it to the Michigan team, Doc Cooke, Minnesota Athletic Director, said that if Michigan wanted the jug back, they would have to win it back.

While the Armory's athletic connection is significant, the building is also a tribute to the University's roots as a land grant institution with a responsibility to provide an opportunity for Minnesotans to obtain commissions in the Armed Forces. Herein rests the true significance of the ROTC programs at the University of Minnesota. First, the University has a legal and moral responsibility to provide first-rate support for ROTC. Legally, the University must comply with the Morrill Act of 1862 which requires land grant institutions to provide training in military tactics to future officers. Morally, the University owes its existence to the Morrill Act. Further, the University has a responsibility to provide well educated officers to the military who have the cultural and ethical values found in the Upper Midwest.

CURRENT STATUS AND NEEDS

The Armory was built in 1896 at a cost $67,000 with funding provided by the State Legislature. The building has had no structural changes since it was built. It has been well maintained and kept to include re-roofing (1983); sandblasting and tuckpointing of the exterior have also been accomplished. It is not air-conditioned and classrooms, offices, and other areas reflect 19th century standards. The building is in urgent need of fire and safety code improvements. Because of its age, the Armory is not in compliance with contemporary codes.

A few of the problems identified by the University's Building Code Official include:

° No enclosed fire-rated stairways;
° No fire alarm system;
° Inadequate means of egress from most rooms;
° Exits too narrow for minimum requirements;
° Interior structure basically wood and lacks fire rating requirements in the walls, ceilings, and floors;
° Corridor doors lack proper fire-rating and self-closing assemblies.
° Handicapped access inadequate throughout building.

The needs of the Armory are clear: The building needs to be renovated to provide modern classrooms, staff space, and support areas (gymnasium, pistol range, cadet staff space, and tri-service library) for the three ROTC programms at the University. A 19th century facility is not adequate for programs moving into the 21st century. A plan needs to be developed to maximize the space available in the Armory, make the Armory a safe facility meeting modern building codes, and to continue the historic role of the Armory at the University of Minnesota campus. One important way to emphasize the historic role of the Armory would be to make it a focal point by presenting a display of the history and traditions of the University. The renovation plan should include space where the University can display memorabilia which define the history and character of the University. This display area would be open to the public and hopefully become the place where students, prospective students, parents and alumni come to gain insight into the roots of the University of Minnesota and the role it has played and will continue to play in the development of the State of Minnesota.

The following resolution has been adopted by the ROTC Alumni Society of the University of Minnesota to acknowledge the present status of the Armory and to promote a renovation program to achieve contemporary standards and usefulness.

ROTC ALUMNI SOCIETY OF THE UNIVERSITY OF MINNESOTA

RESOLUTION

WHEREAS, The University of Minnesota is required under contract to the U.S. Government to furnish adequate facilities for the conduct of the ROTC (Reserve Officer Training Corps) Programs;

WHEREAS, The Armory building furnished by the University of Minnesota has been recognized since 1914 to be inadequate and continues to be so;

WHEREAS, The Armory building has failed to meet code standards during timely inspections by building code officials;

WHEREAS, The ROTC Programs at the University of Minnesota provide vital training for future civilian and military leaders; and,

WHEREAS, The citizen soldier concept is a key and strategic cornerstone for the security and national defense of the United States of America;

THEREFORE LET IT BE RESOLVED, That appropriate resources be identified by the Governor of the State of Minnesota, the Minnesota State Legislature and the Board of Regents of the University of Minnesota for the purpose of instituting and implementing the following courses of action to be taken in a timely manner:

1. The Board of Regents:

    a. Make an assessment of conditions and space utilization of the Armory building and determine therefrom if more space can be allocated to meet the ROTC Program needs.

    b. Appoint a Building Assessment Committee to assess the Armory building with respect to the needs of the ROTC Programs and then recommend such building modifications and remodeling required to appropriately meet the University's obligations to its students, the U.S. Government and the cognizant building codes.

2. A Fund Raising Committee to be composed of representatives from the faculty and planning office of the University, the American Legion, the Veterans of Foreign Wars, the Air Force Association, the Association of the United States Army, the Reserve Officers Association, the Minnesota Chapter of The Retired Officers Association, the Marine Corps Reserve Officers Association, the Navy League, the Minnesota National Guard Officers Association, the Military Order of the World Wars, the ROTC Alumni Society of the University of Minnesota, the Minnesota Historical Society and any others as may be deemed so appropriate, shall be formed and the first meeting called by the Commander of the ROTC Alumni Society.

3. The Governor of the State of Minnesota, as Honorary Chairman of the University of Minnesota Armory Renovation Support Committee, be requested to review both the progress and final report of the Building Assessment Committee and therefrom develop a funding strategy through both public and private sources for the remodeling of the Armory building in conjunction with the Fund-raising Committee.

II. ACADEMIC BRIEF

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AEROSPACE STUDIES

MISSION AND OBJECTIVES

The Air Force ROTC program enables qualified men and women to work toward Reserve commissions as officers in the Air Force while completing requirements for a University degree. Students are commissioned as second lieutants upon graduation.

The Air Force ROTC curriculum emphasizes development of leadership and communication skills. Students learn the ways in which the Air Force functions in support of national policy. Management theory and its practical application in directing personnel and programs are stressed.

Air Force ROTC offers four-year, two-year, and one-year commissioning programs. Under the four-year program students register for Air Force ROTC courses beginning in their freshman year and complete a four-year academic curriculum that includes a four-week summer camp between their sophomore and junior year. Students electing the two-year program complete the camp during the summer immediately preceding their last two years at the University. The two-year program is available to both graduate and undergraduate students. One year programs are directed toward future lawyers and nurses.

INSTRUCTIONAL PROGRAM

1. Leadership Laboratory

Leadership Laboratory (LL) is a series of minicourses, covering military topics, taught to all cadets each quarter. These classes are designed to help students develop functional leadership skills in problem solving, decision making, personnel management, and other areas. Progressive and extensive practice in voice and command, bearing, and physical fitness is emphasized. (Planned and directed largely by the Cadet Corps; 10 hours required each quarter.)

2. Lower Division

1104 Fall - U.S. AIR FORCE (1 credit) The doctrine, mission, and organization of the U.S. Air Force.

1105 Winter - AIR FORCE COMBAT COMMANDS (1 credit) The mission, organization, and operation of the Strategic Air Command, Aerospace Defense Command, and Tactical Air Command and their contributions to the U.S. strategic offensive, defensive, and general purpose forces.

1106 Spring - U.S. SUPPORT FORCES (1 credit) The structure and functions of Air Force support forces. Orginizations that support the combat commands. Air Force interaction with the Army and Navy.

1204 Fall - EARLY HISTORY OF AIR POWER (1 credit) The beginnings of human flight. Early military attitudes toward aviation and the development of employment concepts, tactics, and strategies. Early development of air doctrines.

1205 Winter - ALLIED AIRPOWER IN WORLD WAR II and the Berlin Airlift. (1 credit) Uses of airpower in World War II. Development of an independent Air Force. Cold war strategy. The Berlin Airlift.

1206 Spring - MODERN EMPLOYMENT OF AIRPOWER (1 credit) Effects of airpower on tactics and strategy in the modern world. The role of airpower in Korea, Cuba, Southeast Asia. Airpower advances over the past quarter century.

3. Upper Division

3301 Fall - MILITARY MANAGEMENT (3 credits) Fundamentals of management processes with emphasis on the unique nature of management in the Air Force. Emphasis on problem solving, decision making, performance appraisal, and communication skills. Lectures, discussions, student presentations, seminars, and various experiential methods.

3302 Winter - AIR FORCE LEADERSHIP COMMUNICATION (3 credits) Multidimensional study of leadership, relating theory and practice. Overview of theoretical approaches to leadership. Application of interpersonal communication skills to leadership practice. Small-group processes and analysis of individual behavior, motivation, and perceptual processes. Lectures, discussions, student presentations, seminars, and various experiential methods.

3303 Spring - CONTEMPORARY PROBLEMS IN AIR FORCE MANAGEMENT (3 credits) Integration and application of management and leadership concepts to contemporary Air Force situations. Emphasis on social problems and issues related to the all-volunteer, professional force. Command and staff functions, ethics, responsibilities. Lectures, discussions, student presentations, seminars, and various experiential methods.

3401 Fall - MILITARY IN SOCIETY (3 credits) Role and function of the professional officer in a democratic society. Civil-military relationships. Development of communication skills.

3402 Winter - FORMULATION AND IMPLEMENTATION OF U.S. DEFENSE POLICY (3 credits) Principal requirements for maintaining adequate national security forces. Constraints affecting the formulation of U.S. defense policy. Impact of both technological and international developments upon strategic preparedness and overall defense policy-making process.

3414 Spring - MILITARY LAW AND SERVICE ORIENTATION (3 credits) History and basic concepts of military justice; emphasis on origin, nature, and purpose of Uniform Code of Military Justice and Manual for Courts-Martial; relationship between military justice and military discipline; scope and nature of appellate review; service orientation for newly commissioned officers.

The Air Force ROTC program at the University of Minnesota will assume even greater significance if an anticipated consolidation of the detachments at

the University of Minnesota-Duluth and the College of St. Thomas with the cadet corps at Detachment 415 (University of Minnesota-Minneapolis) occurs. Det 415 will then be the only AFROTC presence in Minnesota.

4. Staff

The staff of Det 415 presently consists of four officers, three NCO's, and two civilian employees:

Name	Rank or Position
Colonel David J. Dean	Full Professor
Major Dennis E. Dolphin	Assistant Professor
Captain Thomas D. Needham	Assistant Professor
Captain Alan S. Cazares	Assistant Professor
Msgt Edward A. Yulo	Chief of Personnel
SSgt Rickey W. Gulbrantson	Chief of Administration
SSgt Anita E. Miller-Woody	Assistant Chief of Personnel
Patricia W. McDonald	Principal Secretary
Diane A. Cresswell	Principal Secretary

The staff is anticipated to increase by one officer and one NCO when the consolidation referred to above comes about. The cadet corps is anticipated to increase by approximately 50 cadets as a result of the consolidation. Typically, one section will be added across the board throughout the four year program to accommodate the increase.

MILITARY SCIENCE

MISSION AND OBJECTIVES

The Army ROTC Program at the University of Minnesota selects, motivates and trains Army Officers for the active Army, Army Reserve and Army National Guard. The heart of the Army ROTC Program is leadership experience and opportunities. The skills and knowledge of an officer are developed through the classroom and leadership laboratory instruction and through the organizational activities of the cadet battalion and a host of other ongoing ROTC events.

The ROTC Program at the University of Minnesota offers many extracurricular activities: The Scabbard and Bland organization was founded in 1905, (second oldest in the nation), to help foster ideas and practices of military education. The Pershing Rifles, an award-winning precision drill team, was established in May 1930. The University of Minnesota Rifle Team, composed largely of ROTC Rifle Team Members, has ranked high in national honors and is highly competitive. In 1966, "Rangers" were formed to assist and help cadets prepare themselves to maintain a high degree of physical fitness and tactical proficiency in participating in field training, survival training, helicopter assault training, adventure-type training, etc. In May 1983 the Society of American Military Engineers became an official organization and Army (AUSA) also became an official organization. Additionally, ROTC organizations and teams are active in intramural and Tri-Service intramural athletics such as football, basketball, volleyball, softball and soccer.

The development of character and integerity by ROTC cadets is a basic objective of the Reserve Officer Training Corps Program at the University of Minnesota. A cadet is expected to display at all times the necessary attributes of leadership, character and integrity expected of an officer of the United States Army. The program is designed to produce enlightened military and civilian leaders of strong moral fiber whose minds are creative, critical and resourceful.

The academic curriculum and military training encourage logical analysis, clear and concise expression of considered views, independent thought and action along with a readiness, developed within a framework of military discipline, to carry out orders without reservation once a decision has been reached.

INSTRUCTIONAL PROGRAM

1. Leadership Laboratory

Leadership laboratory provides the basic skills and knowledge for drill and ceremonies, first aid, mountaineering, rifle marksmanship, other adventure training, and physical conditioning. It develops leadership skills and knowledge for effectively commanding, and controlling the actions of a small unit. It also presents practical application of skills and knowledge in leading, supervising, instructing, and training others in planning, organizing, coordinating, conducting, and evaluating the daily activities and special events of the Army ROTC organization.

2. Lower Division

1001f - BASIC MILITARY SKILLS (1 credit) A leadership laboratory providing the basic skills and knowledge for drill and ceremonies, first aid, mountaineering, rifle marksmanship, other adventure training, and physical conditioning.

1002w - BASIC MILITARY SKILLS (1 credit) A leadership laboratory providing the basic skills and knowledge for drill and ceremonies with/without weapons, first aid, self-defense, communications procedures, and physical conditioning.

1003s - BASIC MILITARY SKILLS (1 credit) A leadership laboratory providing the basic skills and knowledge for land navigation, small unit operations and weapons usage, intermediate-level drill and ceremonies, and physical conditioning.

1013s - WORLD MILITARY HISTORY - INTERNATIONAL DIMENSIONS OF CONFLICT (2 credits & History 1953) Role of U.S. Military in international relations. Historical perspective of present-day conflicts since 1945, to include Middle East, Latin America, NATO and Warsaw Pact, terrorism, and nuclear confrontation.

1011f - U.S. MILITARY HISTORY - A PERSPECTIVE IN LEADERSHIP (2 credits and History 1951) History of military leadership from the Revolutionary War, Civil War, World War I, World War II, through the Vietnam experience. Emphasis on successful military leaders; Washington, Grant, Lee, Pershing, Patton, others.

1201f (formerly 1004) - LEADERSHIP - SMALL UNIT RESPONSIBILITIES (1 credit) Laboratory to teach leader responsibilities, to develop leadership skills in a small unit, to increase basic military skills, and to improve physical conditioning.

1202w (formerly 2002) - LEADERSHIP - SMALL UNIT COMMUNICATIONS, CONTROL, AND COORDINATION (1 credit) Laboratory to develop leadership skills while performing as a small unit leader, to develop skills in communication and control, and to improve physical conditioning.

1203s (formerly 2003) - LEADERSHIP - SMALL UNIT TRAINING, TACTICS, AND TERRAIN ASSOCIATION (1 credit) A laboratory that requires the developing leader to instruct a class, direct the tactical deployment of a small unit, and to navigate by terrain to prescribed locations, and to improve physical conditioning.

1221w - LEARNING TO LEAD (2 credits) Fundamental leadership traits. Assessment and development of leadership skills. Theory and practical application.

1222s - TRAINING MANAGEMENT (2 credits) Philosophy and principles. Concepts and applications in conducting and evaluating individual and collective training. Emphasis on managerial leadership.

3. Upper Division

3130f,w,s - MILITARY SCIENCE III - LEADERSHIP LABORATORY (1 credit per quarter [3 credits maximum]; prerequisite #) Develops leadership skills and knowledge for effectively commanding, controlling, and communicating the actions of a small unit and for acquiring requisite military skills in areas such as basic mountaineering, drill and ceremonies, small unit operations, land navigation, marksmanship and physical conditioning.

3131f - LEADERSHIP ASSESSMENT AND TRAINING (3 credit; prerequisite number) A combination of lecture, discussion, and an oral presentation in learning how to apply the principles of leadership while leading, communicating with, and training subordinates. Classroom instruction will focus on U.S. Army infantry organizations.

3232w - LAND NAVIGATION/SMALL UNIT TACTICS (3 credits; prequiste number) Read and interpret military maps; use basic land navigation techniques; develop skills and knowledge required for squad and platoon sized tactical operations.

3133s - SMALL UNIT TACTICS (3 credits; prerequiste number) Small unit operations in conventional and unconventional battlefield environments; employment in tactical situations.

3140f,w,s - MILITARY SCIENCE IV - LEADERSHIP LABORATORY (1 credit per quarter [3 credit maximum]; prerequiste number) The practical application of skills and knowledge in leading, supervising, instructing, and training others in planning, organizing, coordinating, conducting, and evaluating the daily activities and special events of the Army ROTC organization.

3141f - MILITARY MANAGEMENT, ETHICS, AND PROFESSIONALISM (3 credits; prerequiste number) Staff procedures in military organizations; staff writing, training management, and professional development.

3142w - LEADERSHIP COMMUNICATION AND ETHICS - (3 credits; prerequisite number) Percepts and practices of military leadership and communication concepts. Code of military ethics and professionalism.

3143s - MILITARY LAW (2 credits; prerequisite number) History and basic concepts of military justice; emphasis on origin nature, and purpose of Uniform Code of Military Justice and Manual for Courts-Martial; relationship between military justice and military discipline; scope and nature of appellate review.

3970 - DIRECTED STUDIES (credits arranged; prerequisite number) Provides flexibility so a student can fit an ROTC course into his/her schedule if it might otherwise prohibit participation in ROTC. Instructor and student determine a convenient time to meet. Course content is the same as regularly listed military science courses.

4. Staff

The staff of the Department of Military Science currently consists of eight officers, two non-commissioned officers, four secretaries, and one civilian supply technician. There is no plan for increasing the staff in the near future.

Name	Rank or Position
Lieutenant Colonel Marvin D. Trout	Full Professor
Major Karl K. Hamilton	Assistant Professor
Major L. C. Stewart	Assistant Professor
Captain Robert O. Holmstrom	Assistant Professor
Captain Jeffrey P. Johnson	Assistant Professor
Captain Virgil R. Mullins	Assistant Professor
Captain Larry D. Springer	Assistant Professor
Sergeant Major Brian Kielpinski	Chief Drill Instructor
Master Sergeant Louis E. Sabin	Principal Drill Instructor
Marie Y. Angel	Military Personnel Technician
Geri Johanson	Executive Secretary
Deborah A. Kissel	Military Personnel Clerk
Barbara J. Swanson	Senior Secretary
Eugene J. Pavek	Material Management Specialist
Robert H. Patrin	Storeclerk

PUBLIC SERVICE AND CONTINUING EDUCATION

The Military Science Department supports several organizations which are not associated with the Reserve Officer's Training Corp (ROTC). The number and size of these organizations vary from year to year but are generally on the increase as it becomes known our facilities are available. The Armory Rifle Range, run by the Army ROTC, has the greatest outside usage. Although the rifle range is antiquated it remains one of the best in the nation and by far the best in Minnesota. During any given school year, four to seven private shooting clubs with membership on an average of forty-five members, will rent the rifle range for two days per month. This not only provides them a facility not available anywhere else in the state, but brings money into the university. The administration of this program is handled solely by the Military Science Department. Other private organizations such as Alcoholics Anonymous use our classroom for their weekly meetings. Their meetings are held normally for one hour per week and the classroom is provided free of charge. Community relations is enhanced through the program. On a non-recurring basis other organizations request the use of our facilities, such as classrooms, and are supported best as possible. The Armory gym is another good example of ROTC support of the community. The gym is used on a daily basis by University professors and students not associated with ROTC as a means of exercising free of charge. The numbers vary from day-to-day but are significant when added up over the school year. The gym is used numerous times throughout the year for social functions which are open to the public at large. The social functions are designed not to raise money but to strengthen community relations. The gym is also made available to other organizations such as fraternaties and sororities as scheduling permits.

NAVAL SCIENCE

MISSION AND OBJECTIVES

The Naval ROTC program offers the opportunity for qualified young men and women to earn commissions as Navy or Marine Corps officers as they complete requirements for a University degree. The NROTC program is the single largest producer of officers for the regular Navy. Students are commissioned as Ensigns in the Navy or Second Lieutenants in the Marine Corps upon graduation.

During their time here at the University of Minnesota, NROTC students complete 480 hours (31 credits) of instruction in naval orientation, naval ship systems, seapower and maritime affairs, nautical navigation, organization, management, and leadership, plus 120 hours of professional training in military drills, ceremonies, courtesies, and honors. Their Naval Science instruction is specifically designed to prepare them to actively and efficiently compliment the U.S. Navy and its mission accomplishment in support of national interests. All NROTC students receive indoctrination in the background and meaning of our national and naval traditions and the importance of professional performance. This awareness, together with the knowledge of and opportunity to practice basic leadership principles, affords them the inner confidence necessary to effectively lead and command others.

Navy ROTC offers four, three, and two-year commissioning programs under the direction of the Chief of Naval Education and Training. Four-year students participate in NROTC activities beginning with an orientation period just prior to the start of classes their freshman year and continuing through their achievement of a bachelor's degree. They are required to complete three summer training periods in addition to their academic work during the regular school year. Three and two year NROTC students participate in the program from the beginning of their sophomore through junior years and are required to complete a summer training session only between their junior and senior years.

INSTRUCTIONAL PROGRAM

1. Lower Division (Basic Course)

0204f,w,s - PROFESSIONAL TRAINING IN NAVAL SCIENCE (no credits) Instruction and training in basic military formations, movements, commands, courtesies and honors, personal inspections, and other vocational subjects in the field of naval science.

1001f - FUNDAMENTALS OF NAVAL SCIENCE (2 credits) Instruction in the fundamentals of naval science.

1101w - NAVAL SHIPS SYSTEMS I (2 credits) Types, purposes, and structures of naval ships. Ship compartmentation, steam and fossil fuel propulsion systems, ship design, and ship stability characteristics.

1102s - NAVAL SHIPS SYSTEMS II (2 credits) Nonsteam 1201s

1201s - SEAPOWER AND MARITIME AFFAIRS (3 credits, History 5021, History 5022) Historical influences on the development of the United States Navy from the American Revolution to the present. Examination of several critical, contemporary issues in naval/maritime affairs.

1202f - PRINCIPLES NAVAL WEAPON SYSTEMS (2 credits) Theory and principles of energy fundamentals, radar, electro-optics, underwater acoustics, electronic scanning, beam propagation and feedback systems, and digital and analog computation used in modern weapons systems and military technology.

1203w - SCIENCE AND TECHNOLOGY IN THE DESIGN, CONSTRUCTION, AND USE OF MODERN WEAPONS SYSTEMS (2 credits; prerequiste 1201) Techniques and methods in fusing scientific principles and current technology to design and construct military weapons and integrated weapons systems. Weapon propulsion, guidance, launching, command, control, and communications. Survey of characteristics of several advanced weapons platforms.

Hist 5021w - OCEANIC HISTORY - EAST AND WEST (4 credits, 1201; prerequisite number) Medieval and early modern maritime science and technology, resources and motivation, and the process of expansion, to 1715.

Hist 5022s - OCEANIC HISTORY - EAST AND WEST (4 credits, 1201; prerequisite number) European empires overseas, industrialization, and the transportation revolution on the oceans to 1945.

2. Upper Division (Advanced Course)

3301f - INLAND AND COASTAL NAVIGATION (3 credits) Piloting, dead reckoning, fixes, running fixes, tides, currents, and anchoring. Rules of the nautical road.

3302w - CELESTIAL AND ELECTRONIC NAVIGATION (4 credits; prerequisite trigonometry) Navigation using celestial bodies. Modern electronic navigation systems.

3303s - ADVANCED NAVAL OPERATIONS (3 credits; prerequisite number) International rules of the nautical road. Relative motion and ship maneuvering. Application of the maneuvering board in solving motion problems.

3401f - PRINCIPLES OF NAVAL MANAGEMENT I (2 credits) Management theory and its application to formal military organizations, national level to shipboard.

3402w - PRINCIPLES OF NAVAL MANAGEMENT II (2 credits) Management at the shipboard level. Divisional organization. Uniform Code of Military Justice. Formal organizations.

3403s - PRINCIPLES OF NAVAL MANAGEMENT III (2 credits) Management at the shipboard level: divisional organization, Uniform Code of Military Justice, formal organization.

3. Marine Corps Sequence

3352f - EVOLUTION OF ART OF WAR I (2 credits; prerequisite number) Principles of war. Evolution of warfare from 3500 B.C. through the French Revolution.

3353w - EVOLUTION OF ART OF WAR II (2 credits; prerequisite number) Military technology and theory from the industrial revolution through the armistice preceding World War II.

3354s - EVOLUTION OF ART OF WAR III (2 credits; prerequisite number) Warfare from World War II through the Vietnam experience.

3452f - AMPHIBIOUS WARFARE I (2 credits; prerequisite number) Amphibious warfare techniques from the Pacific campaigns of World War II through the postwar amphibious trails.

3454s - AMPHIBIOUS WARFARE III (2 credits; prerequisite number) Post-World War II amphibious operations; present-day concepts of amphibious operational planning.

4. Staff

The NROTC Unit, University of Minnesota, presently has a staff of six officers, four enlisted personnel, and two civilian employees.

Name	Position
Captain Robert P. Wainscott, USN	Professor of Naval Science
Commander Trudy Lynne Hoag, USN	Associate Professor of Naval Science
Captain Michael J. Vohaska, USMC	Assistant Professor of Naval Science
Lieutenant John M. Clubb, USNR	Assistant Professor of Naval Science
Lieutenant Michael D. Hanson, USN	Assistant Professor of Naval Science
Lieutenant Marc D. Baumgarner, USN	Assistant Professor of Naval Science
YNC Roger L. Ping, USN	Administrative Assistant
QMC Jeffrey Sylvia, USN	Naval Science Instructor
SKC Wayne D. Osborne, USN	Supply and Fiscal Assistant
SSGT Ricardo Figueroa, USMC	Naval Science Instructor
Deborah L. Heifort	Government Secretary
Judy R. Sigal	University Principal Secretary

PUBLIC SERVICE AND CONTINUING EDUCATION

All Naval Science classes are open to enrollment and participation by all University of Minnesota students and faculty. One of our Naval Science instructors has periodically taught an extension class in Celestial, Inland and Coastal navigation when demand is great. The midshipman battalion often contributes as a group to many campus activities, such as student body elections, orientation, and sports events. Additionally, the midshipman battalion has initiated and maintained a weekly volunteer group, "Sailors and Marines Who Care", at the Variety Club Children's Hospital. Their contributions cannot be measured, but are invaluable to the children under care.

III. MINNESOTA FACILITIES MODEL APPLICATION

III. MINNESOTA FACILITIES MODEL APPLICATION

GENERAL

The Minnesota Facilities Model provides a systematic planning method for measuring the required space needs of departments or units programmed for new or remodeled building projects. The objectives in implementing the space model are to provide an accepted methodology identifying the relationship between programs and facilities and to use University standards and guidelines to determine space requirements.

The Minnesota Facilities Model is structured into four major components: The University Facilities Inventory is a record of current departmental assignments and usage of space. This data is provided for all programs included in the building project. The Qualitative Component evaluates the physical condition and program suitability of existing facilities. The Predictor Component outlines the various types of data which are translated into space requirements through the Guideline Component. This information can be divided into three major parts--student, faculty/staff and programmatic data. The Guideline Component contains the standards, guidelines, and formulas which provide the methodology for translating program activities into physical space.

Application of the Minnesota Facilities Model will sucessfully allow for the programmatic space planning of adequate offices, conference rooms, utility areas, user study space, and collection storage.

INVENTORY OF EXISTING SPACE (Armory Building)

DEPARTMENT	ASF	
ROTC		28,271 ASF
Aerospace Studies	5,894	
Military Science	7,424	
Naval Science	14,953	
Space Shared By Above Units		23,845 ASF
Gun Shed	5,103	
Gymnasium	7,774	
Rifle Range	5,780	
Storeroom	5,188	
Non-ROTC		10,270 ASF
Professional Dev/Conf	3,032	
Theatre Arts	5,150	
Central Scheduled Classroom	2,088	
Building Total		62,386 ASF

SUMMARY

The Theatre Arts Scene Shop will remain in building number 011, but the assigned space (5,150 asf) will not be altered. The Continuing Education and Extension activity (Prof Dev/Conf) will be relocated from the building to an, as yet, unidentified location and all relocation costs will be borne by the Armory Remodeling project. It is estimated that approximately 5,000 asf can be gained by generating assigned square footage in unfinished space at the third floor and developing a second floor over the gun shed spaces in the Armory. At the completion of remodeling it is estimated there will be approximately 66,800 asf available in the Armory. Of that available asf, 5,150 asf will continue to be occupied by the Theatre Arts Scene Shop; and 2,088 asf will be a centrally scheduled classroom; approximately 59,550 asf will be available to the ROTC program.

ROTC PROGRAM PREDICTORS (projected to 1994)

Aerospace Studies

Faculty	7.0
Staff	7.0
Students (Cadets)	170.0
Weekly Contact Hours (Classroom)	646.0

Military Science

Faculty	7.0
Staff	8.0
Undergrad Student Assistants	52.0
Students (Cadets)	210.0
Weekly Contact Hours (Classroom)	995.5

Naval Science

Faculty	7.0
Staff	7.0
Students (Cadets)	140.0
Weekly Contact Hours (Classroom)	509.0
Weekly Contact Hours (Labs)	932.0

Total (ROTC Units)

Faculty	21.0
Staff	22.0
Undergrad Student Assistants	52.0
Students (Cadets)	520.0
Weekly Contact Hours (Classroom)	2,150.5
Weekly Contact Hours (Lab)	932.0
Gymnasium	Programmatic
Firing Range	Programmatic
Storeroom	Programmatic
Tri-Service Library	Programmatic
Gun Shed	Programmatic

GUIDELINE APPLICATION
(Predictor x Guideline = Required asf)

Aerospace Studies			7,775 asf
7 Faculty	x	150 asf = 1,050 asf	
7 Staff	x	150 asf = 1,050 asf	
170 Students (Cadets)	x	30 asf = 5,100 asf	
646 Weekly Contact Hours (Classroom)	x	.89 asf = 575 asf	
Military Science			11,516 asf
7 Faculty	x	150 asf = 1,050 asf	
8 Staff	x	150 asf = 1,200 asf	
52 Undergrad Student Assistants	x	40 asf = 2,080 asf	
210 Students (Cadets)	x	30 asf = 6,300 asf	
995.5 Weekly Contact Hours (Classroom)	x	.89 asf = 886 asf	
Naval Science			11,299 asf
7 Faculty	x	150 asf = 1,050 asf	
7 Staff	x	150 asf = 1,050 asf	
140 Students (Cadets)	x	30 asf = 4,200 asf	
509 Weekly Contact Hours (Classroom)	x	.89 asf = 453 asf	
932 Weekly Contact Hours (Labs)	x	3 asf = 2,796 asf	
Uniform Storeroom		Programmatic = 1,200 asf	
Equipment Storeroom		Programmatic = 550 asf	
Shared ROTC Facilities			27,565 asf
Gymnasium		Programmatic =10,774 asf	
Firing Range		Programmatic = 5,780 asf	
Storeroom		Programmatic = 5,188 asf	
Tri-Service Library		Programmatic = 720 asf	
Gun Shed		Programmatic = 5,103 asf	
Total ROTC Requirement			58,155 asf
Non-ROTC			
Theatre Arts Scene Shop		Programmatic = 5,150 asf	
Central Scheduled - Large Classroom		2,088 asf	
Total Building Requirement by 1994			65,393 asf
Total Available for ROTC at Completion of Remodeling (est.)			59,550 asf

IV. FACILITY REQUIREMENTS

IV. FACILITY REQUIREMENTS

INTRODUCTION

The three service ROTC units occupying the Armory approve of the present general division and identity within the building. The ground floor spaces are assigned to Aerospace Studies ROTC, the second floor assigned to Military Science ROTC, and the third floor to Naval Science ROTC. While this division appears logical and presently satisfactory, the architect is encouraged to exercise freedom and latitude in planning for the best utilization of building space.

The entry and central display hall in the renovated Armory would be a viewing hall that could be open to the second and third floors. This area would depict aspects of the University's involvement with the armed services throughout history. It would also contain very early history of the University athletic program, as the Armory has housed both the ROTC and athletic programs in the past. The area would be open to the public to provide history and insight into the traditions of ROTC and the University for visitors to the campus.

Tunnel accessibility to other buildings in the University should be considered, especially since the recent re-routing of the busing system virtually isolates the Armory building by a wall of rapidly moving buses and cars. This makes crossing both Church and Union streets extremely dangerous, especially during the winter months when driving conditions are somewhat less than ideal.

AEROSPACE

INTRODUCTION AND OVERVIEW

The purpose of the Armory Renovation project is to bring a 90 plus year old building up to current standards so that it may continue to serve the University in the most optimum fashion. In order to do this and retain the character and heritage of the facility, the exterior will remain virtually unchanged, but the interior will represent the needs and reality of a 20th century population.

1. General

In general, the design is such that it meets the needs of the three ROTC detachments while optimizing classroom spaces for additional University classes. The functional relationship is described in this section and comments on the relationships and proximity required.

The space required by Air Force ROTC is that of the entire first floor, exclusive of the Air Force and Army Supply room, small arms range, custodial, mechanical room, and atrium. The current occupants of the first

floor are nine staff members as outlined in the Academic Brief. The staff is anticipated to increase by five personnel when the anticipated consolidation occurs. These personnel are full-time employees and occupy the facility year-round.

2. Student Population

The number of cadets serviced averages approximately 130 over the course of the year and does not include the 40 Extension students who take Air 1104-1106 as a one credit history course. As the Corps expansion comes about and as an increase in space allows, the year round average of cadets could increase to approximately 170. With the increase in space, the current student number restriction on Air 1104-1106 will be lifted. Based on previous year's attendance, ROTC can expect 80 students per quarter taking this sequence of study.

Therefore, the student population AFROTC can expect to serve in any academic term is 250. To meet this expanded population, and provide an acceptable instructor-to-student ratio will require the total number of sections taught by Air Force instructors to grow from the current 10 to 14. To accommodate this increase and avoid scheduling problems, an additional classroom will be required. Also, due to the requirements imposed on AFROTC by headquarters, the large multipurpose classroom on the second floor would be needed by AFROTC in order to accommodate the entire AFROTC corps. The need for such a facility for AFROTC alone occurs approximately six times per quarter. Adding leadership laboratory training into the classroom utilization equation, AFROTC find that currently there are three lab meetings each week. With the forecast expansion, this will increase to at least four and will also require classroom space.

3. Classrooms

The classroom space required to support the above projections must be adequate to support an average size class of 30 students, plus instructor. The classroom must support facilities for use of 35mm projectors, overhead projectors, and VHS displays, as well as adequate blackboard or display areas for wall maps.

4. Staff Offices

Staff areas will require individual offices for all instructors. The requirement is justified due to the amount of counselling required of each student. Each contract cadet is required to be counselled a minimum of twice per quarter. As these counsellings often involve personal aspects of the cadet (i.e. academic performance, Air Force potential, scholarship actions) and due to the positions of the instructors--Professor or Assistant Professor--the retention of individual offices is a must. A typical instructor will conduct 50 counselings per quarter while the maximum number may easily reach 100.

Administrative and secretarial areas must be sufficient to support five personnel currently and projection for seven. The area must be sufficiently equipped to support four computers, one copier, seven typewriters, desks for all personnel, ten file cabinets for administrator and

personnel paperwork, one safe for test materials, a waiting area to accommodate ten people, five bookcases, and telephones for each.

5. Equipment Storage

Equipment for AFROTC is moveable and typically consists of projectors, screens, films, slides, recruiting materials, paper stock, some uniform items, VCR, textbooks, etc. All of this equipment must be secured in one central location. Current disposition is in three separate areas around the Armory.

6. Cadet Areas

Cadets are required to run the Cadet Corps much like an active duty Air Force base, they require a headquarters area, administration and computer room, tenant office, cadet meeting and lounge area, and a tri-service library. Projections indicate the following minimum requirements: cadet headquarters sufficient to support six desks and cadets, administration sufficient to support organizational mailbox, six desks, six typewriters, four administrative file cabinets, personnel safe, and bookcases; computer room sufficient to support two PCs with printers, two desks, two tables, file cabinet; tenant office sufficient to support four desks, four file cabinets, and four typewriters; cadet meeting and lounge area sufficient to support 40 cadets, furniture, electrical facilities to support six appliances.

7. Shared Facilities

The functional design of this facility has been to support the unique requirements of each service. Just as all engineering departments have some overlap, so do they differ as an electrical engineer differs from an aerospace engineer. The areas of overlap can be accommodated via the proposed locker rooms, multipurpose classroom on level two and three, small arms range, and gym. Further areas of overlap for ROTC would be access to the Fieldhouse via the second floor locker facility and access for the entire University by way of a tunnel facility to the CME building.

PRIORITY RANK OF FACILITY NEEDS

Finally, in an attempt to rank order facilities in the event of budget constraints, priority must be given to the students. Therefore, our rank order is as follows:

1. Classrooms
2. Staff Offices
3. Cadet Areas
4. Shared Facilities
5. Equipment Storage
6. Tunnel and Field House Connection

SPACE DESCRIPTIONS

AEROSPACE

Administration and Reception Area.....360 ASF

° Category:	1st floor Armory
° Number Requested:	1
° Height:	10 ft.
° Character:	Formal - Functional
° Activity:	Administration and record keeping, clerical support personnel records storage, reception area
° Occupancy:	5
° Floor:	Carpeted
° Walls:	Painted
° Ceiling:	Acoustical Material
° Climate Control:	Heating and Air Conditioning
° Electrical:	110V
° Lighting:	Fluorescent - General
° Communications:	Phone
° Computers:	Support three PCs with modems
° Special Conditions:	Telephones for 5 personnel, secretaries have console phones - for hold, transfer, conference calls. Modems to support 3 PCs and not preclude telephone usage.
° Remarks:	Offices located adjacent to main entrance

AEROSPACE

AFROTC Cadet Records and Administration Room .....360 ASF

° Category: 1st floor Armory

° Number Requested: 1

° Character: Functional

° Activity: Typing, administrative work, records review and storage area, staff work, mail distribution

° Occupancy: 4

° Floor: Carpeted

° Walls: Painted

° Ceiling: Acoustical Material

° Climate Control: Heating and Air Conditioning

° Electrical: 110V

° Lighting: Fluorescent - General

° Communications: Phone

° Special Conditions: Sufficient electrical outlets to support use of four typewriters

° Remarks: Located next to cadet headquarters

AEROSPACE

Department Head Office.....380 ASF

° Category: 1st floor Armory

° Number Requested: 1

° Height: 10 ft.

° Character: Impressive

° Activity: Staff meetings, counseling, lesson preparation, scholarship interviews, recruiting, receiving visitors

° Occupancy: 1

° Floor: Carpeted

° Walls: Paint or Wallcovering

° Ceiling: Gypsum Board/Acoustical Material

° Climate Control: Heating and Air Conditioning

° Electrical: 110V

° Lighting: General and indirect

° Communications: Phone

° Computers: Support one PC

° Acoustics: Suppress noise from offices and outside

° Special Conditions: Telephone must be able to support PC modem simultaneously

AEROSPACE

Assistant Professor Office.....120 ASF

° Category:	1st floor Armory
° Number Requested:	6
° Character:	Formal - Functional
° Activity:	Counseling, lesson preparation, scholarship interviews, recruiting
° Occupancy:	1
° Floor:	Carpeted
° Walls:	Painted
° Ceiling:	Acoustical Material
° Climate Control:	Heating and Air Conditioning
° Electrical:	110V
° Lighting:	Fluorescent - General
° Communications:	Phone
° Computers:	Support one PC per office
° Special Conditions:	Connections should support expansion to include use of modem from PC.
° Remarks:	Next to department head office.

AEROSPACE

Staff Lounge.....280 ASF

° Category: 1st floor Armory

° Number Requested: 1

° Character: Informal - Functional

° Activity: Staff meetings, breaks, lunch

° Occupancy: 10

° Floor: Carpeted

° Walls: Painted

° Ceiling: Acoustical Material

° Climate Control: Heating and Air Conditioning

° Electrical: 110V

° Lighting: Fluorescent - General

° Communications: Phone and intercom

° Plumbing & Fixtures: Sink - Hot and Cold Water

° Remarks: Located by main entrance

AEROSPACE

Classroom.....600 ASF

° Category: 1st floor Armory

° Number Requested: 3

° Height: 10 ft.

° Character: Educational

° Activity: Class lectures, discussions, meetings

° Occupancy: Approximately 30 students

° Floor: Resilient Tile

° Walls: Painted

° Ceiling: Acoustical Material

° Climate Control: Heating and Air Conditioning

° Electrical: 110 V

° Lighting: Fluorescent - General

° Communications: Intercom

° Computers: Yes

° Special Equipment Sliding blackboards, movie screen

AEROSPACE

AFROTC Cadet Computer Room.....440 ASF

° Category:	1st floor Armory
° Number Required:	1
° Height:	8-10 ft.
° Character:	Functional
° Activity:	Computer processing room
° Occupancy:	4
° Floor:	Resilient Flooring
° Walls:	Painted
° Ceiling:	Acoustical Material
° Climate Control:	Heating and Air Conditioning
° Electrical:	110V
° Lighting:	Fluorescent - General
° Computers:	Support PC and Printer
° Special Equipment:	Modem outlet for computer
° Remarks:	Facility used to process orders, forms, spreadsheets to support lesson plans for AFROTC Lead Lab

AEROSPACE

AFROTC Cadet Headquarters.....540 ASF

° Category: 1st floor Armory

° Number Requested: 1

° Height: 10 ft.

° Character: Functional

° Activity: Staff meetings, administrative work, planning, lesson preparation

° Occupancy: 5

° Floor: Carpeted

° Walls: Painted

° Ceiling: Acoustical Material

° Climate Control: Heating and Air Conditioning

° Electrical: 110V

° Lighting: Fluorescent - General

° Communications: Phone and Intercom

° Remarks: Located by staff offices

AEROSPACE

AFROTC Cadet Tenant Organizations.....640 ASF

° Category:	1st floor Armory Building
° Number Requested:	1
° Height:	8-10 ft.
° Character:	Functional
° Activity:	Houses three tenant organizations, their administration, and personnel records, staff meetings, conferences
° Occupancy:	6
° Floor:	Carpeted
° Walls:	Painted
° Ceiling:	Acoustical Material
° Climate Control:	Heating and Air Conditioning
° Electrical:	110V
° Lighting:	Fluorescent - General
° Communications:	Phone and Intercom
° Remarks:	Located by cadet lounge

AEROSPACE

AFROTC Cadet Lounge.....960 ASF

° Category:	1st floor Armory
° Number Requested:	1
° Character:	Functional
° Activity:	Flight meetings, staff work, lunch, after hours study hall
° Occupancy:	20 - 50
° Floor:	Carpeted
° Walls:	Painted
° Ceiling:	Acoustical Material
° Climate Control:	Heating and Air Conditioning
° Electrical:	110V
° Lighting:	Fluorescent
° Communications:	Phone and Intercom

AEROSPACE

AFROTC Cadet Storage Room.....260 ASF

° Category: 1st floor Armory Building

° Number Requested: 1

° Character: Functional

° Activity: Store cadet equipment

° Floor: Vinyl Composition Tile

° Walls: Painted

° Electrical: 110V

° Lighting: Fluorescent - General

° Communications: Phone and Intercom

° Special Conditions: Walls will require shelves to store equipment

° Remarks: Located by cadet administration and conference area

MILITARY SCIENCE

INTRODUCTION AND OVERVIEW

The space required by the Department of Military Science is the entire second floor of the Armory to include those areas currently being used by Continuing Education. There are fourteen full-time employees utilizing this space. In addition, some 35 to 40 student (cadets) personnel use the area on a part-time basis for administering the needs of the cadet corps. This situation will carry on into 1994 with a possible slight increase in the number of part-time users.

Besides full-time employee and part-time cadet usage, the second floor Armory will support over 210 cadets and non-cadets in academics on a weekly basis throughout the school year in 1993. To meet this requirement by 1993 a third classroom will be needed. Additionally, more classes will have to be taught in order to keep the student to teacher ratio small, thus more classroom hours. These classrooms must be fully equipped to allow for various types of instruction methods i.e. use of overhead projectors, slide projectors, chalk boards, etc. Each should be able to accommodate up to 40 students and the instructor. This would allow more non-cadet students to take the military history courses, for which there is present demand.

The staff and civilian employees for the most part require individual offices due to the nature of their different jobs. The staff (cadre) must have an area that can be made private for the purpose of counseling students. Also they must have sufficient room to store records of their students, text references, and lesson plans that pertain to their individual areas. The administrators must have sufficient space to maintain the common files, reference material, and general administrative support materials. Other office equipment such as typewriters, copy machines, safes, file cabinets, and computers would also be housed. The actual number of each is dependent on the number of students in the program. Presently one copier, two safes, five filing cabinets, five typewriters, three computers, one word processor, six bookcases, fourteen desks and ten telephones are required. There is also need for a large work area for approximately 50 undergraduate student assistants, mostly cadets, to assist the staff.

The cadets require virtually the same amount of space and equipment to administer the cadet corps. In addition, they need a library and study area that provides research materials unique to the military. As a minimum they will need ten desks, one computer, three typewriters, one word processor, five file cabinets, six bookcases, and a conference room plus lounge area. The conference room should be capable of accommodating 35 to 40 cadets. All of these areas, as well as the staff areas, must provide electrical outlets for the computers, typewriters and other electrical appliances such as coffee makers.

FUNCTIONAL RELATIONSHIPS

In addition to the above the cadets require a gym, locker areas, and latrines to accommodate up to 200 male and 50 female cadets. However, these facilities can be shared with the other services ROTC programs. The locker areas will be used on a daily basis by the majority of the cadets as will the latrines. The gym will typically be used twice a week for two hours by the majority of the cadets. However, the gym is used every day during noon for recreational physical training. The number of people who use it varies at this time but is approximately 25 per day. These people are a mixture of University professors, non-cadets, and cadets.

PRIORITY RANK OF FACILITY NEEDS

The mission of the ROTC Program dictates the priority. To teach and train students is our mission, therefore, the following priority:

1. Classrooms
2. Staff Offices
3. Cadet Offices
4. Lounge Area
5. Shared Spaces
6. Tunnel and Field House Connection

SPACE DESCRIPTIONS

ARMY

Administrative Office and Reception Area.....300 ASF

° Category:	2nd floor Armory Building
° Number Requested:	3
° Height:	10 ft.
° Character:	Formal - Functional, Pleasant Atmosphere
° Activity:	Records preparation, storage and maintenance, visitor reception
° Occupancy:	Maximum of 3, includes student assistants
° Floor:	Carpeted
° Walls:	Painted
° Ceiling:	Acoustical Material
° Climate Control:	Heating and Air Conditioning
° Electrical:	110V
° Lighting:	Fluorescent and Direct
° Communications:	Phone and Intercom
° Computers:	Support one PC per office
° Acoustics:	Sound absorbing materials
° Special Conditions:	3 telephones per office
° Remarks:	Reception for department head, assistant professors and staff

ARMY

Department Head, Professor of Military Science Office.....430 ASF

° Category:	2nd floor Armory Building
° Number Requested:	1
° Height:	10 ft.
° Character:	Formal - Functional
° Activity:	Counseling, Interviews, Meetings
° Occupancy:	1
° Floor:	Carpeted
° Walls:	Painted
° Ceiling:	Acoustical Material
° Climate Control:	Heating and Air Conditioning
° Electrical:	110V
° Lighting:	Fluorescent and Direct
° Communications:	Phone and Intercom
° Computers:	One PC
° Remarks:	Located Northwest corner of 2nd floor

ARMY

Assistant Professor Office.....120 ASF

° Category:	2nd floor Armory Building
° Number Requested:	6
° Height:	10 ft.
° Character:	Formal - Functional
° Activity:	Counseling, records preparation, lesson preparation, interviews, recruiting
° Occupancy:	1
° Floor:	Carpeted
° Walls:	Painted
° Ceiling:	Acoustical Material
° Climate Control:	Heating and Air Conditioning
° Lighting:	Fluorescent and Direct
° Communications:	Phone and Intercom
° Computers:	Support one PC
° Special Conditions:	One telephone per office. Connections should support expansion of office equipment - i.e., computers
° Remarks:	Adjacent to professor's office

ARMY

Staff Lounge.....400 ASF

° Category:	2nd floor Armory Building
° Number Requested:	1
° Character:	Relaxed, Informal, Pleasant Atmosphere
° Activity:	Conversation, eating, coffee
° Occupancy:	10
° Floor:	Carpeted
° Walls:	Painted
° Ceiling:	Acoustical Material
° Climate Control:	Heating and Air Conditioning
° Electrical:	110V and 220V
° Lighting:	Fluorescent and Direct
° Communications:	Intercom

ARMY

Undergraduate Student Assistants.....600 asf

° Category	2nd Floor Armory Building
° Number Requested:	1
° Height:	8-10 ft.
° Character:	Formal, functional
° Activity:	Administrative, records
° Occupancy:	15-20
° Relationship:	Administrative and Records area
° Floor:	Carpeted
° Walls:	Painted
° Ceiling:	Acoustical material
° Climate Control:	Heating and air conditioning
° Electrical:	110V
° Lighting:	General - fluorescent
° Communications:	Phone and intercom
° Computers:	5 PCs

ARMY

Classroom.....600 ASF

° Category:	2nd floor Armory Building
° Number Requested:	3
° Height:	12 ft.
° Character:	Formal, Stimulating
° Activity:	Lecture, Discussion, Testing
° Occupancy:	30
° Floor:	Vinyl Composition Tile
° Walls:	Painted
° Ceiling:	Acoustical Material
° Climate Control:	Heating and Air Conditioning
° Electrical:	110V
° Lighting:	Fluorescent and Direct
° Special Equipment	Screen built into wall; storage space behind screen
° Remarks:	Located on south end of 2nd floor

ARMY

Cadet Headquarters.....720 ASF

° Category: 2nd Floor Armory Building

° Number Requested: 1

° Height: 10 ft.

° Character: Formal - Functional

° Activity: Records preparation and maintenence - Lesson preparation, recruiting, Staff meetings

° Occupancy: 10

° Floor: Carpeted

° Walls: Painted

° Ceiling: Acoustical Material

° Climate Control: Heating and Air Conditioning

° Electrical: 110V

° Lighting: Fluorescent and Direct

° Communications: Phone and Intercom

° Computers: Support one PC

ARMY

Cadet Study Area.....360 ASF

° Category: 2nd floor Armory Building

° Number Requested: 2

° Height: 10 ft.

° Character: Relaxed, Quiet, Semi-formal

° Activity: Research, Study

° Occupancy: 10

° Floor: Carpeted

° Walls: Painted

° Ceiling: Acoustical Material

° Climate Control: Heating and Air Conditioning

° Electrical: 110V

° Lighting: Fluorescent and Direct

° Communications: Intercom

° Acoustics: Sound absorbing

° Remarks: Located North side of gym

ARMY

Cadet Lounge .....720 ASF

- Category: 2nd Floor Armory Building
- Number Requested: 1
- Height: 10 ft.
- Character: Relaxed, Functional, Appealing Atmosphere
- Activity: Socializing, relaxing, coffee
- Occupancy: 25 - 30
- Floor: Carpeted
- Walls: Partial Acoustical Material
- Ceiling: Acoustical Material
- Climate Control: Heating and Air Conditioning
- Electrical: 110V
- Lighting: Fluorescent and Indirect
- Communications: Phone and Intercom

ARMY

Cadet Equipment Storeroom.....200 ASF

° Category: 2nd Floor Armory Building

° Number Requested: 1

° Character: Functional

° Activity: Store Cadet Equipment

° Floor: Vinyl Composition Tile

° Walls: Painted

° Climate Control: Ventilation

° Electrical: 110V

° Lighting: General

NAVAL SCIENCE

INTRODUCTION AND OVERVIEW

The Armory was constructed in 1896 and was then a focal point of the University. It is a fine example of the older architecture on campus, but is now sorely lacking in functional and practical interior needs. The project, to renovate the building, will bring its usability up to current standards while preserving its original character and heritage. In order to accomplish this end, the exterior of the building will remain virtually unchanged while the interior will be drastically altered to fit the needs of today.

The specific and diverse requirements of each of the three ROTC detachments must be considered in ascertaining the optimum classroom and space needs. Grouping all three of the services into one category is akin to assuming that all physical science disciplines require the same facilities. The diversity of the functional relationships are specifically addressed in this document.

Required area for NROTC specific usage is approximately 10,000 ASF including classrooms, staff and midshipmen offices, administrative and reception areas, storerooms, and laboratories.

1. Staff

The current staff of the Naval Science Department consists of twelve full-time, year-round employees. Six of these, including the Professor of Naval Science, Associate Professor of Naval Science, and four Assistant Professors of Naval Science, are active duty Navy and Marine Corps officers. Three are Navy Chief Petty Officers and one Marine Corps Staff Sergeant including one assistant navigation instructor, one drill instructor, one yeoman, and one supply clerk. The remaining two staff members are one University of Minnesota principal secretary and one federally assigned GS-5 who perform invaluable administrative functions. Each of the professors requires suitable private office space to conduct several quarterly counseling sessions with each of his or her students, perform duties normally associated with teaching on a collegiate level, and carry out the necessary tasks assigned to them by their service collateral duties. Each member of the staff needs an office space appropriate to their level of seniority and acitivity.

The offices of the Professor and Associate Professor of Naval Science should be close. Additionally, the office spaces of the Administrative Officer and the secretaries must be located with easy access for either of the two senior professors. Need exists for an administrative area for the Administrative Officer and secretaries with space for maintenance of student records, computer terminal space for access to the Chief of Naval Education and Training (CNET), Officer Programs Management Information System (OPMIS), three typewriters, one computer and associated printer, and sufficient file cabinets and bookshelves.

The Marine Corps officer and assistant Marine Corps officer must also be co-located, as must the three remaining Assistant Professors of Naval Science. Both the Marine Corps offices and the offices of the three Navy officers should have adjoining space for reception, as each of the officers, in the conducting of his duties, must hold interviews with prospective students and parents.

2. Classrooms

Additionally, the NROTC program must use two standard classrooms of approximately 720 square feet. Because of the unique and diverse nature of the required instruction within the Naval Science Department itself, these classrooms must also be fitted with storage space for large and specific training aids: a topographically correct world globe, historically composed flip charts of the world map, engineering equipment (pumps, valves, etc.), and damage control equipment (Y-gate valves, all-purpose applicators, etc.).

There must also be a specially equipped classroom with large drafting tables for approximately thirty to forty students for navigation instruction. Sufficient storage for several thousand marine navigation charts should be included. This classroom will also serve as a laboratory for approximately 12 hours per student per week; therefore, it must be available exclusively for NROTC students the entire week.

3. Function Specific Areas

Requirements will exist for one storeroom of approximately 1,200 square feet for storage of uniform and supply items, a book storeroom of approximately 250 square feet, audio visual equipment storage of 200 square feet, and staff and midshipman lounges of 400 and 720square feet respectively. Each lounge will have electrical facilities to support several appliances and running water.

Because of the mission of the NROTC program to train officers for effective leadership positions in the fleet the midshipman battalion is organized and functions throughout the entire year as would an active unit in the Navy. As such, there also exists a need for midshipman battalion spaces including two adjoining administratives areas; one office with six desks for battalion staff and company staff. Each office must accommodate one filing cabinet per desk, as well as one table and two typewriters for each room.

4. Marching Band

The Navy ROTC has traditionally maintained a marching band platoon, and consequently requires secure storage for approximately fifty band instruments of varying sizes. The band performs at every NROTC activity, as well as at Tri-Service events and local parades and ceremonies on request. With the band is an elite color guard and drill team, which also requires storage for fifty ceremonial rifles and sword regalia.

Weekly training is conducted through the school year which requires the accessibility of one large classroom with a capacity of approximately two hundred students. This training is held every Wednesday morning, and the classroom would be centrally scheduled.

PRIORITY RANK OF FACILITY NEEDS

In the interest of the midshipmen and the purpose of the NROTC program, a priority ranking of facilities is necessary. Understanding that budget constraints are inevitable, the following ranking from most essential to least essential is given:

1. Navigation Classroom and Laboratory
2. Two Standard Classrooms with storage space
3. Staff Offices
4. Administration Area
5. Supply Storeroom
6. Midshipman Offices
7. Band and Color Guard and Drill Team Storage
8. Audio Visual Storage
9. Shared Spaces
10. Tunnel and Connection to Field House

SPACE DESCRIPTIONS

NAVY

Administrative Office and Reception Area.....480 ASF

° Category:	3rd floor Armory Building
° Number Requested:	1
° Height:	8-12 ft.
° Character:	Formal
° Activity:	Reception of guests, File, Storage, Word Processing
° Occupancy:	2-10
° Relationship:	Adjoins Yeoman's office, near Commanding Officer's office
° Floor:	Carpeted
° Walls:	Painted
° Ceiling:	Acoustical Material
° Base:	Wood
° Climate Control:	Heating and Air Conditioning
° Electrical:	110V
° Lighting:	Fluorescent and Indirect
° Communications:	Phone
° Computers:	Yes, access to University of Minnesota system
° Special Equipment	Copying Machines
° Remarks:	Windows required Located at West side of building, North of center

NAVY

Commanding Officer (Professor of Naval Science) Office.....480 ASF

° Category:	3rd floor Armory Building
° Number Requested:	1
° Height:	8-12 ft.
° Character:	Formal
° Activity:	Interviews, Counseling, Meetings, Administration
° Occupancy:	1
° Relationship:	Adjacent to Executive Officer's office, Senior enlisted staff office
° Floor:	Carpeted
° Walls:	Paneling
° Ceiling:	Acoustical Material
° Base:	Wood
° Climate Control:	Heating and Air Conditioning
° Electrical:	110V
° Lighting:	Fluorescent and Indirect
° Communications:	Phone
° Computers:	Yes, access to University of Minnesota system
° Remarks:	Windows required Located at northwest end of building

NAVY

Executive Officer Office.....300 ASF

° Category:	3rd floor Armory Building
° Number Requested:	1
° Height:	8-12 ft.
° Character:	Formal
° Activity:	Course preparation, Counseling, Interviews, Administration
° Occupancy:	1
° Relationship:	Near Commanding Officer's office
° Floor:	Carpeted
° Walls:	Paneling
° Ceiling:	Acoustical Material
° Base:	Wood
° Climate Control:	Heating and Air Conditioning
° Electrical:	110V
° Lighting:	Fluorescent and Indirect
° Communications:	Phone
° Computers:	Yes, access to University of Minnesota system
° Remarks:	Located near Reception and Commanding Officer

NAVY

Reception Area for Navy Instructors.....240 ASF

° Category: 3rd floor Armory Building

° Number Requested: 1

° Height: 8-12 ft.

° Character: Formal

° Activity: Reception of guests, Interviews, Waiting Area

° Occupancy: 5-10

° Relationship: Adjoins 3 Navy instructor's offices

° Floor: Carpeted

° Walls: Paneling

° Ceiling: Acoustical Material

° Base: Wood

° Climate Control: Heating and Air Conditioning

° Electrical: 110V

° Lighting: Fluorescent and Indirect

° Communications: Phone

° Computers: Yes, access to University of Minnesota system

° Remarks: No floor exists
Located at North end of building

NAVY

Navy Instructor (Assistant Professor of Naval Science Office)....120 ASF

° Category:	3rd floor Armory Building
° Number Requested:	3
° Height:	8-10 ft.
° Character:	Formal
° Activity:	Interviews, Counseling, Course Preparation, Administration
° Occupancy:	1
° Relationship:	Offices must adjoin Navy instructor reception area
° Floor:	Carpeted
° Walls:	Painted
° Ceiling:	Acoustical Material
° Base:	Wood
° Climate Control:	Heating and Air Conditioning
° Electrical:	110V
° Lighting:	Fluorescent and Indirect
° Communications:	Phone
° Computers:	Yes, access to University of Minnesota system
° Remarks:	No existing floor, windows required Located at North end of building

NAVY

Marine Officer Instructor Office (Assistant Professor).....150 ASF

° Category:	3rd floor Armory Building
° Number Requested:	1
° Height:	10 ft.
° Character:	Formal
° Activity:	Interviews, counseling, course preparation, administration
° Occupancy:	1
° Relationship:	Near Assistant Marine Officer Instructor office, Midshipman office space
° Floor:	Carpeted
° Walls:	Painted
° Ceiling:	Acoustical Material
° Base:	Wood
° Climate Control:	Heating and Air Conditioning
° Electrical:	110V
° Lighting:	Fluorescent and Indirect
° Communications:	Phone
° Computers:	Access to University of Minnesota System
° Remarks:	No floor exists; windows required Located at North side of building

NAVY

Assistant Marine Officer Instructor Office.....120 ASF

° Category:	3rd floor Armory Building
° Number Requested:	1
° Height:	8-10 ft.
° Character:	Formal
° Activity:	Interviews, counseling, course preparation, administration
° Occupancy:	1
° Relationship:	Near Marine Officer Instructor Office, Midshipman Office Space
° Floor:	Carpeted
° Walls:	Painted
° Ceiling:	Acoustical Material
° Climate Control:	Heating and Airconditioning
° Electrical:	110V
° Lighting:	Fluorescent and Indirect
° Communications:	Phone
° Computers:	One, access to University of Minnesota System
° Remarks:	No floor exists; Located at North side of Building

NAVY

Reception Area for Marine Officers.....120 ASF

° Category: 3rd floor Armory Building

° Number Requested: 1

° Height: 8 ft.

° Character: Formal

° Activity: Reception of Guests, Waiting Area

° Occupancy: 5

° Relationship: Adjoins Marine Officer Instructor office and Assistant Marine Officer instructor office

° Floor: Carpeted

° Walls: Painted

° Ceiling: Acoustical Material

° Climate Control: Heating and Air Conditioning

° Electrical: 110V

° Lighting: Fluorescent and Indirect

° Remarks: No floor exists; Located at North side of building

NAVY

Senior Enlisted Staff Office.....190 ASF

° Category:	3rd floor Armory Building
° Number Requested:	1
° Height:	8-12 ft.
° Character:	Formal
° Activity:	Administration, Counseling, File Storage, Course Preparation
° Occupancy:	1
° Relationship:	Near Commanding Officer's office
° Floor:	Carpeted
° Walls:	Painted
° Ceiling:	Acoustical Material
° Base:	Wood
° Climate Control:	Heating and Air Conditioning
° Electrical:	110V
° Lighting:	Fluorescent and Indirect
° Communications:	Phone
° Computers:	Yes, access to University of Minnesota
° Remarks:	Windows Required Located at West side of building

NAVY

Yeoman Office.....120 ASF

° Category: 3rd floor Armory Building

° Number Requested: 1

° Height: 8 ft.

° Character: Formal

° Activity: Administration, File Storage, Word Processing

° Occupancy: 1

° Relationship: Adjoins, Administrative Office and Reception Area

° Floor: Carpeted

° Walls: Painted

° Ceiling: Acoustical Material

° Base: Wood

° Climate Control: Heating and Air Conditioning

° Electrical: 110V

° Lighting: Fluorescent and Indirect

° Communications: Phone

° Computers: Yes, access to University of Minnesota

° Remarks: Located at West side of building, North of center

NAVY

Staff Conference and Lounge Area.....400 ASF

° Category:	3rd floor Armory Building
° Number Requested:	1
° Height:	8-12 ft.
° Character:	Formal
° Activity:	Meetings, Interviews, Audio-Visual Presentations, Administrative Boards, Lounge
° Occupancy:	15
° Relationship:	Near Administrative Office
° Floor:	Carpeted
° Walls:	Painted
° Ceiling:	Acoustical Material
° Base:	Wood
° Climate Control:	Heating and Air Conditioning
° Electrical:	110V
° Lighting:	Fluorescent and Indirect
° Communications:	Phone
° Special Equipment	Movie screen, Conference table, Coffee mess
° Special Conditions:	Includes North tower (current Navy Commanding Officer's office)
° Remarks:	Windows required Located at West side of building

NAVY

Classroom.....720 ASF

° Category:	3rd floor Armory Building
° Number Requested:	2
° Height:	8-12 ft.
° Character:	Functional
° Activity:	Classroom instruction
° Occupancy:	30
° Relationship:	Near restroom
° Floor:	Vinyl Composition Tile
° Walls:	Painted
° Ceiling:	Acoustical Material
° Base:	Wood
° Climate Control:	Heating and Air Conditioning
° Electrical:	110V
° Lighting:	General and Direct
° Special Equipment	(Chalk) blackboard at each end (total 2), Desk space for 30
° Remarks:	Windows required

NAVY

Navigation Class and Laboratory.....1,800 ASF

° Category:	3rd floor Armory Building
° Number Requested:	1
° Height:	12 ft.
° Character:	Functional
° Activity:	Instruction, Chart and Navigation Laboratory
° Occupancy:	30
° Floor:	Vinyl Composition Tile
° Walls:	Painted
° Ceiling:	Acoustical Material
° Base:	Wood
° Climate Control:	Heating and Air Conditioning
° Electrical:	110V
° Lighting:	General and Direct
° Communications:	Phone
° Computers:	Yes
° Remarks:	Windows required

NAVY

Audio-Visual Storage Room.....200 ASF

° Category: 3rd floor Armory Building

° Number Requested: 1

° Height: 8-12 ft.

° Character: Functional

° Activity: Storage and issue of Audio-Visual aids equipment

° Occupancy: 2-3

° Relationship: Near lecture hall, classrooms

° Floor: Vinyl Composition Tile

° Walls: Painted

° Ceiling: Gypsum Board

° Base: Wood

° Climate Control: Ventilation

° Electrical: 110V

° Lighting: General

NAVY

Lecture Hall Storage Area.....300 ASF

° Category:	3rd floor Armory Building
° Number Requested:	1
° Height:	16-24 ft.
° Character:	Functional
° Activity:	Storage and Issue of audio-visual equipment
° Relationship:	Adjoins lecture hall
° Floor:	Vinyl Composition tile
° Walls:	Painted
° Ceiling:	Gypsum Board
° Base:	Wood
° Climate Control:	Ventilation
° Electrical:	110V
° Lighting:	General
° Special Conditions:	2 floors high

NAVY

Midshipman Training Space.....750 ASF

° Category:	3rd floor Armory Building
° Number Requested:	1
° Height:	8-12 ft.
° Character:	Functional
° Activity:	Counseling, Administration
° Occupancy:	12-20
° Relationship:	Near Marine Officer, Instructor Office
° Floor:	Carpeted
° Walls:	Painted
° Ceiling:	Acoustical Material
° Base:	Wood
° Climate Control:	Heating and Air Conditioning
° Electrical:	110V
° Lighting:	Fluorescent and Direct
° Communications:	Phone and Intercom
° Special Conditions:	Must accommodate up to 12 office desks
° Remarks:	No floor exists; Located at N.E. corner of building

NAVY

Midshipman Wardroom.....720 ASF

° Category:	3rd floor Armory Building
° Number Requested:	1
° Height:	8-12 ft.
° Character:	Formal
° Activity:	Classwork, Meeting, Lounge
° Occupancy:	20-30
° Relationship:	Near restroom and Midshipman office space
° Floor:	Carpeted
° Walls:	Paneling
° Ceiling:	Acoustical Material
° Base:	Wood
° Climate Control:	Heating and Air Conditioning
° Electrical:	110V
° Lighting:	Fluorescent and Indirect
° Communications:	Phone
° Remarks:	No floor exists; Located at north side of building

NAVY

Midshipman Band and Color Guard Area.....440 ASF

° Category:	3rd floor Armory Building
° Number Requested:	1
° Height:	8-12 ft.
° Character:	Functional
° Activity:	Storage, Instrument Cleaning, Uniform preparation
° Occupancy:	10-15
° Relationship:	Near Midshipman office space and Midshipman Wardroom
° Floor:	Vinyl Composition Tile
° Walls:	Painted
° Ceiling:	Plaster and Gypsum Board
° Base:	Wood
° Climate Control:	Heating and Air Conditioning
° Electrical:	110V
° Lighting:	Fluorescent and Direct
° Remarks:	No floor exists; Located at North side of building

NAVY

Midshipman Organization and Club Area.....240 ASF

° Category:	3rd floor Armory Building
° Number Requested:	1
° Height:	8-12 ft.
° Character:	Formal
° Activity:	Meetings, Lounge for small groups
° Occupancy:	15-20
° Floor:	Carpeted
° Walls:	Painted
° Ceiling:	Acoustical Material
° Base:	Wood
° Climate Control:	Heating and Air Conditioning
° Electrical:	110V
° Lighting:	Fluorescent and Indirect
° Remarks:	Windows required Located at West side of building

NAVY

Supply Storage and Issue.....1,200 ASF

° Category:	3rd floor Armory Building
° Number Requested:	1
° Height:	8-12 ft.
° Character:	Functional
° Activity:	Storage and Issue of books, Uniforms, Teaching Materials
° Relationship:	Near lecture hall and audio-visual storage room
° Floor:	Vinyl Composition Tile
° Walls:	Painted
° Ceiling:	Acoustical Material
° Base:	Wood
° Climate Control:	Heating, Ventilating, Air Conditioning and Humidity Control
° Electrical:	110V
° Lighting:	Fluorescent and Direct
° Communications:	Phone
° Computers:	Yes, access to University of Minnesota system

SPACE SHARED BY ROTC UNITS

INTRODUCTION AND OVERVIEW

The unique traditions and historical evolutions of each of the three ROTC battalions puts equally unique requirements on even the areas which can be shared. Common areas discussed are the gymnasium, adequate locker room and shower facilities (for each sex), the firing range, storeroom, tri-service library, the large classroom, and the gun shed.

1. Gymnasium

The gymnasium and locker rooms must be available exclusively to ROTC as physical training is paramount to each service's mission and is held at virtually all hours of the week. Additionally, staff specific physical training is held every day at mid-day, and intramural sports are held every afternoon throughout the year. Because of anticipated growth in all three ROTC programs, lockers for up to six hundred midshipmen and cadets will be needed.

2. Firing Range

The small arms firing range is another area of overlap amongst the services, though the actual scheduling of the range is vastly different between the three. Navy uses the range only minimally during the year for familiarization firing by the entire midshipman battalion. The NROTC pistol and rifle team uses the range over the winter months to practice for several inter-collegiate matches. The Army ROTC, uses the range quite often, as small arms proficiency is integral to their specific program. They also hasve a similar shooting team to the Navy team although they conduct training using very different procedures and standards of firing.

3. Storeroom

(Programmatic)

4. Tri-Service Library

(Programmatic)

5. Gun Shed

(Programmatic)

SPACE SHARED

Gymnasium and Locker Rooms.....10,774 ASF

° Category:	2nd floor Armory Building
° Number Requested:	1
° Height:	45 ft.
° Character:	Recreational activities e.i., sports, Informal
° Activity:	Basketball, Volleyball, Hockey, Aerobics
° Occupancy:	up to 150
° Floor:	Wood
° Walls:	Painted
° Ceiling:	Open trusses
° Climate Control:	Heating and Air Conditioning
° Lighting:	Incandescent - General
° Communications:	Intercom
° Special Equipment:	Scoreboard (electrical), Basketball goals (Retractable), Bleachers (folding)
° Remarks:	Locker facilities for maximum of 600 persons, including 100 women, to be generated at new second level over the Gun Shed.

SPACE SHARED

Firing Range.....5,780 ASF

° Category:	1st floor Armory
° Number Requested:	1
° Height:	10 ft. (±)
° Character:	Functional
° Activity:	Small Arms Training
° Occupancy:	24
° Floor:	Other
° Walls:	Other
° Climate Control:	Ventilation and Air Conditioning
° Lighting:	Special/Indirect
° Communications:	Phone
° Acoustics:	Shield rest of building from small arms fire
° Special Conditions:	Facility must be adequately shielded to prevent penetration of a wall by a small bore weapon. Ventilation must be sufficient to meet health standards and remove all gases. Pipes and lighting must be protected from stray rounds.

SPACE SHARED

Air Force and Army Storeroom.....5,188 ASF

° Category:	1st floor Armory
° Number Requested:	1
° Height:	10 ft. (+)
° Character:	Functional
° Activity:	Uniform Storage - Equipment Storage
° Occupancy:	2
° Floor:	Resilient, maintainable
° Walls:	Painted
° Ceiling:	Acoustical Material
° Climate Control:	Heating and Air Conditioning
° Electrical:	110V
° Communications:	Phone and Intercom
° Plumbing & Fixtures:	Sufficient to support washer and dryer
° Remarks:	This facility includes an arms locker of approximately 160 asf. Located first floor adjacent small arms range.

SPACE SHARED

Tri-Service Library.....720 ASF

° Category:	2nd floor Armory Building
° Number Requested:	1
° Height:	10 ft.
° Character:	Formal, Pleasant Atmosphere, Stimulating
° Activity:	Research, Studying
° Occupancy:	30
° Floor:	Carpeted
° Walls:	Painted
° Ceiling:	Acoustical Material
° Climate Control:	Heating and Air Conditioning
° Electrical:	110V
° Lighting:	Fluorescent and Direct
° Communications:	Intercom and Phone
° Acoustics:	Sound Absorbing material on walls
° Special Conditions:	Bookshelves throughout

SPACE SHARED

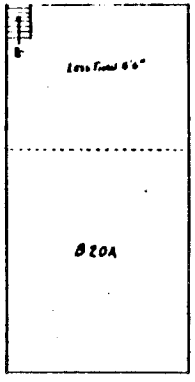
Gun Shed.....5,103 ASF

° Category:	1st Floor Armory
° Number Requested:	1
° Character:	Utility
° Activity:	Garage, vehicle and boat storage
° Floor:	Concrete
° Walls:	Masonry
° Ceiling:	Gypsum Board - painted
° Climate Control:	Ventilation
° Electrical:	110V
° Lighting:	Fluorescent - General
° Special Equipment	Secured tool storage for maintenance
° Special Conditions:	Floor drains - ventilation
° Remarks:	New second floor at this area. Located at east end of building.

SUMMARY OF FACILITY REQUIREMENTS

1. DEPARTMENT OF AEROSPACE STUDIES			6,700 asf
OFFICES		2,060 asf	
Administration and Reception	360 asf		
Records and Administration	360		
Department Head	380		
Assistant Professors (6 @ 120)	720		
Staff Lounge	240		
CLASSROOMS		1,800 asf	
Typical classroom (3 @ 600)	1,800 asf		
STUDENT (CADET) AREA		2,840 asf	
Cadet Headquarters	540 asf		
Computer Room	440		
Tenant Organizations	640		
Cadet Lounge	960		
Cadet Storage	260		
2. DEPARTMENT OF MILITARY SCIENCE			7,330 asf
OFFICES		3,170 asf	
Administrative/Reception (3 @ 300)	900 asf		
Department Head	430		
Assistant Professor (7 @ 120)	840		
Staff Lounge	400		
Undergraduate Student Assistants	600		
CLASSROOMS		1,800 asf	
Typical Classroom (3 @ 600)	1,800 asf		
STUDENT (CADET) AREAS		2,360 asf	
Cadet Headquarters	720 asf		
Cadet Study Area (2 @ 360)	720		
Cadet Lounge	720		
Cadet Equipment Storeroom	200		

3.	DEPARTMENT OF NAVAL SCIENCE			10,050 asf
	OFFICES		2,960 asf	
	Administration and Reception	480 asf		
	Department Head, Professor	480		
	Executive Officer, Assoc. Prof.	300		
	Reception for Navy Instructors	240		
	Assistant Professor (3 @ 120)	360		
	Marine Officer (Assist. Prof.)	150		
	Assistant Marine Officer	120		
	Reception for Marine Officers	120		
	Senior Enlisted Staff Office	190		
	Yeoman Office	120		
	Staff Conference and Lounge	400		
	CLASSROOMS		3,740 asf	
	Typical Classroom (2 @ 720))	1,440 asf		
	Navigation Class and Laboratory	1,800		
	Audio Visual Storage	200		
	Lecture Hall Storage	300		
	STUDENT (CADET) AREA		3,350 asf	
	Midshipman Training	750 asf		
	Midshipman Wardroom	720		
	Band and Color Guard	440		
	Organization and Club Area	240		
	Supply Storage and Issue	1,200		
4.	SPACE SHARED BY ROTC UNITS			27,565 asf
	GYMNASIUM AND LOCKERS		10,774 asf	
	FIRING RANGE		5,780 asf	
	STOREROOM		5,188 asf	
	TRI-SERVICE LIBRARY		720 asf	
	GUN SHED		5,103 asf	
BUILDING TOTAL REQUESTED FOR ROTC				51,645 asf
THEATRE ARTS SCENE SHOP			5,150 asf	
CENTRALLY SCHEDULED CLASSROOM			2,088 asf	
BUILDING TOTAL				58,883 asf



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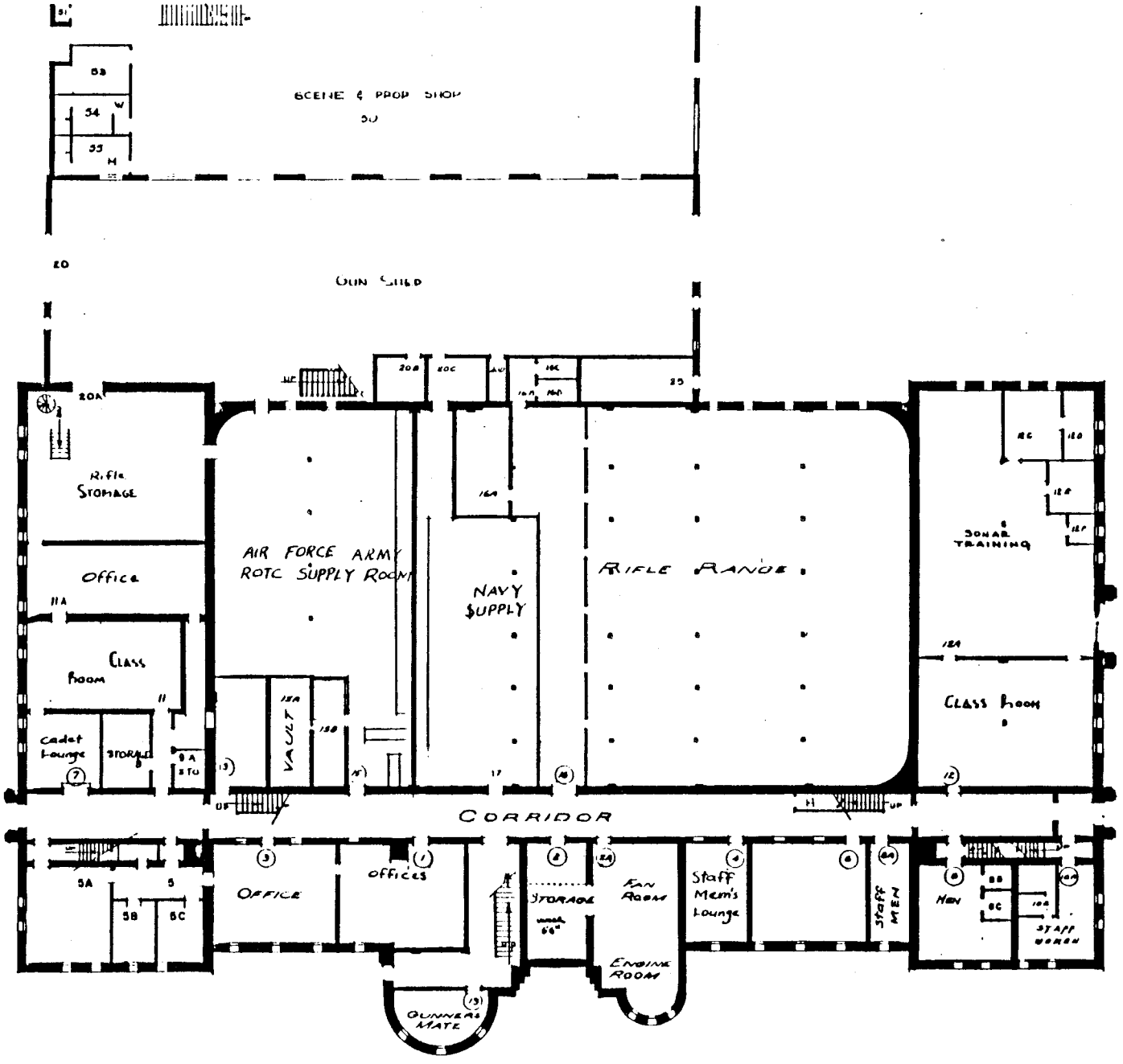
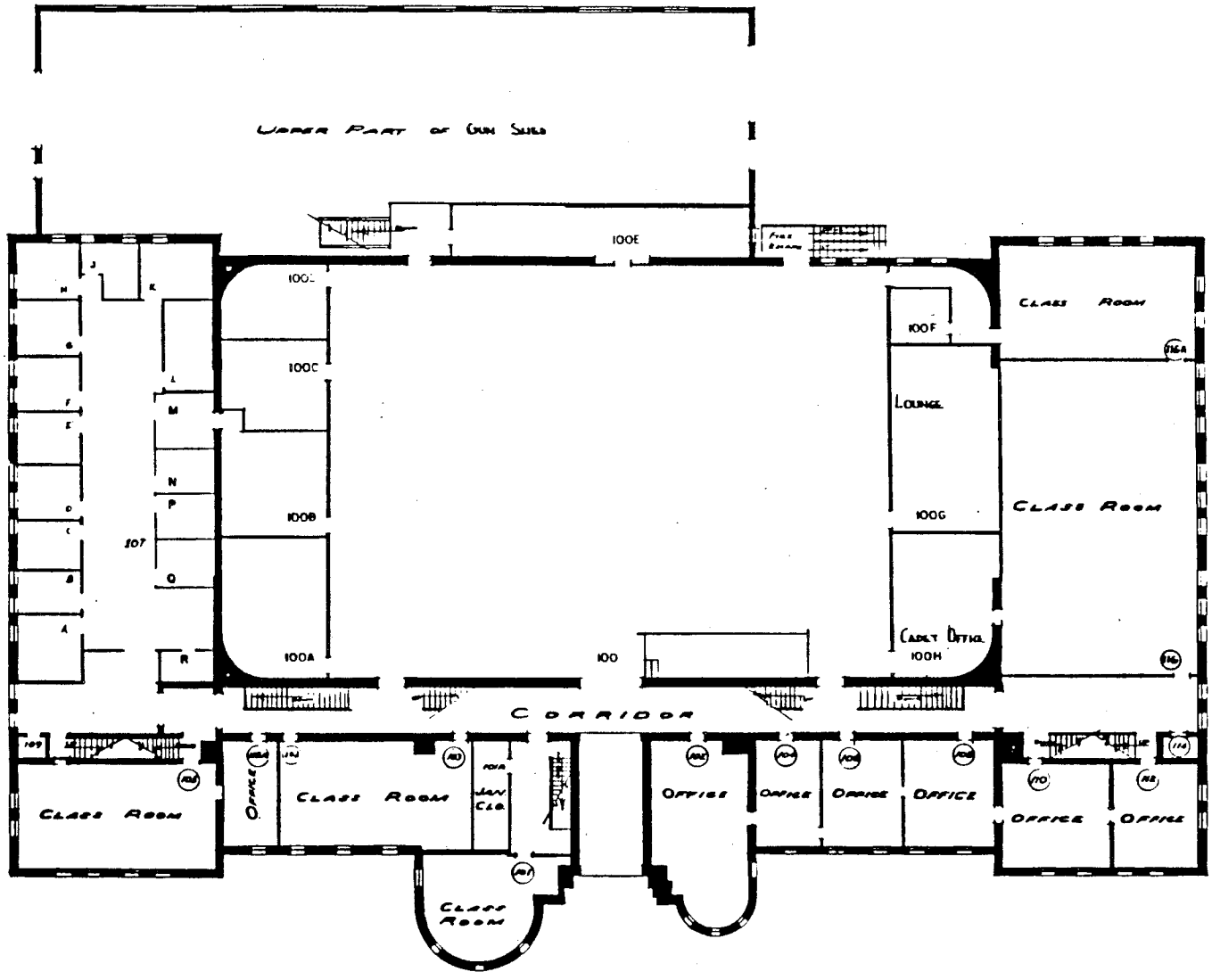


FIRST LEVEL

ARMORY

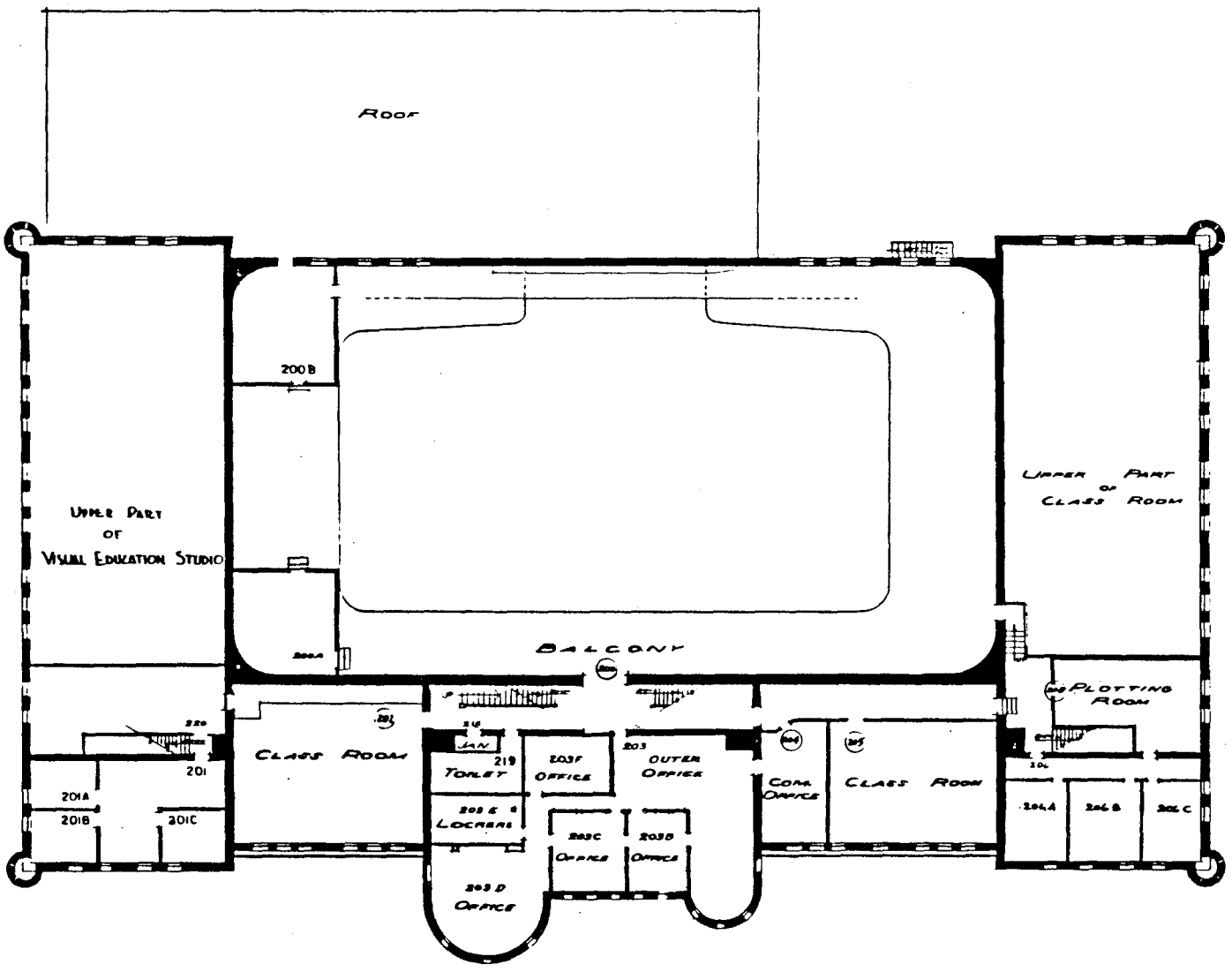
EXISTING



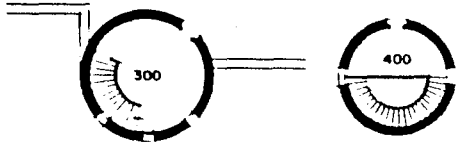
SECOND LEVEL

ARMORY

EXISTING



THIRD LEVEL



ARMORY

EXISTING

V. SITE

BACKGROUND AND ANALYSIS

The interior renovation of the Armory for reasons of safety and improved space utilization, also presents the opportunity to develop the University's traditions and history. This can be accomplished by means of exterior site development in conjunction with the building's renovation.

The site development should respond to the users' objectives in the context of overall campus concerns related to campus image and circulation.

The Armory, which reflects elements of the chateau and medieval architectural styles, lies within the context of eclectic styles including those of Civil Mineral Engineering, Bell Museum, Nolte Center, Architecture and the Field House. As an integral part of this collegiate environment, the Armory's strategic location can positively impact the "sense of arrival" at the University of Minnesota and can contribute to the distinction between the collegiate environment from peripheral land uses.

CAMPUS ENTRANCE

It is the University's intention to capture this feeling of arrival by physically defining, strengthening and maintaining the University's entrances and edges.

Since campus boundaries can be emphasized by establishing clearly identified entry points, the reconfiguration and development of Church Street as a major entrance will significantly contribute to the functional and symbolic image of the campus from University Avenue. Figure 1 denotes the emphasis on Church Street as an entrance point.

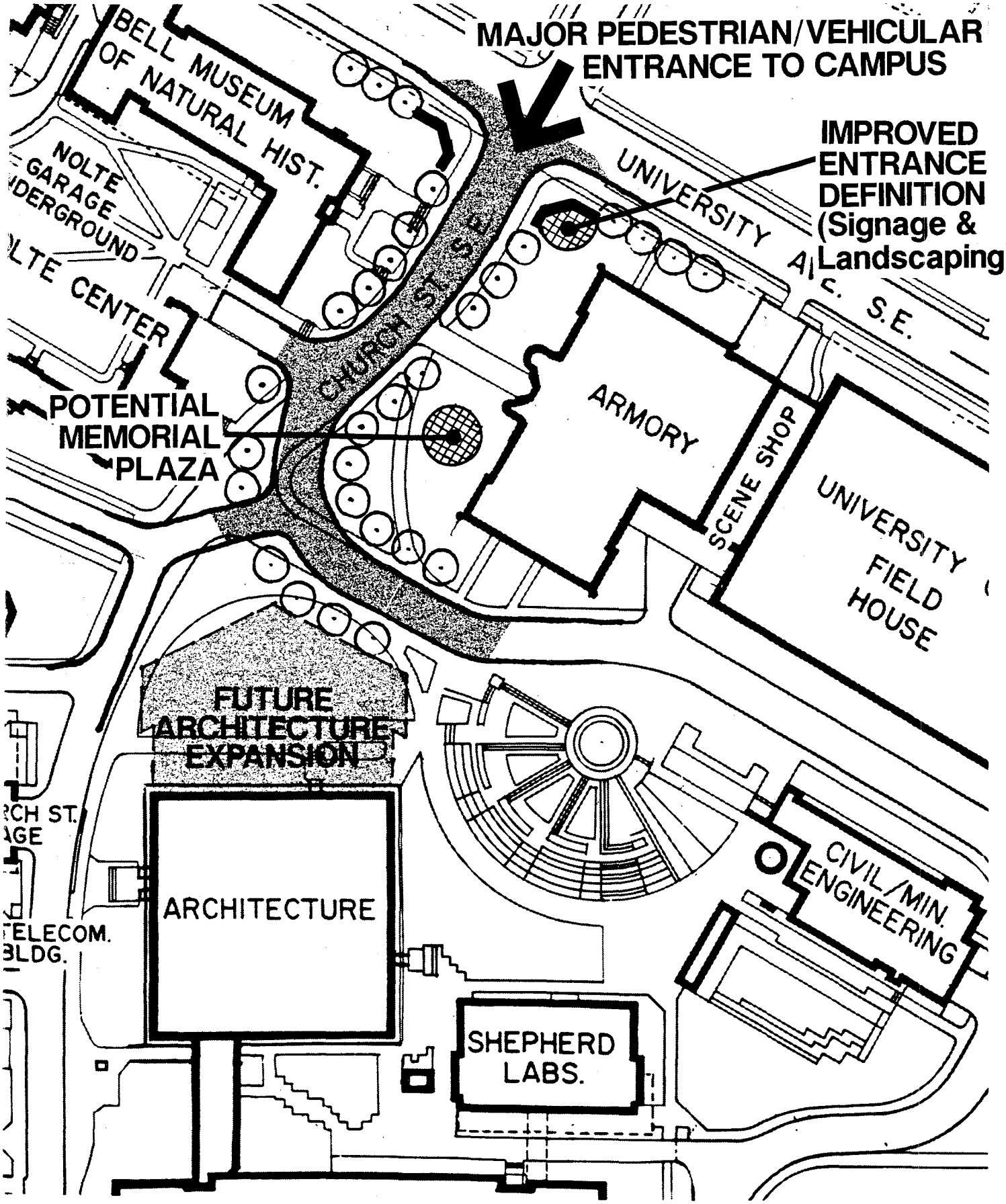
The iron and stone fence directly north of the Armory already defines the north edge of the main campus. This image, while already strong, can be enriched with an articulated entrance at the northwest corner of the Armory. This entrance would include a stone entrance sign with appropriate landscaping, and has the potential for incorporating a memorial plaza. This would serve as a symbol of student participation in the ROTC program as well as the contributions of the ROTC program to the University of Minnesota.

SITE DEVELOPMENT

The Armory has the unique opportunity, by virtue of its location, to enhance the historical connection to the University's athletic programs by providing a pedestrian connection to the Field House and ultimately to the eastern one-third of the campus. A pedestrian connection between the Armory and Civil Mineral Engineering will also provide a continuous pedestrian link between the campus entrance at University Avenue and Church Street south to Amundson Hall at Washington Avenue and Church Street.

SITE ACCESS

These pedestrian links provide a crucial framework for creating a more comfortable and enjoyable environment during the winter months, providing better campus accessibility for mobility impaired individuals, and integrating the rich programmatic diversity of the University into a cohesive campus. Addressing these site development concerns will benefit the Armory's objectives and those of the overall campus of the University of Minnesota.

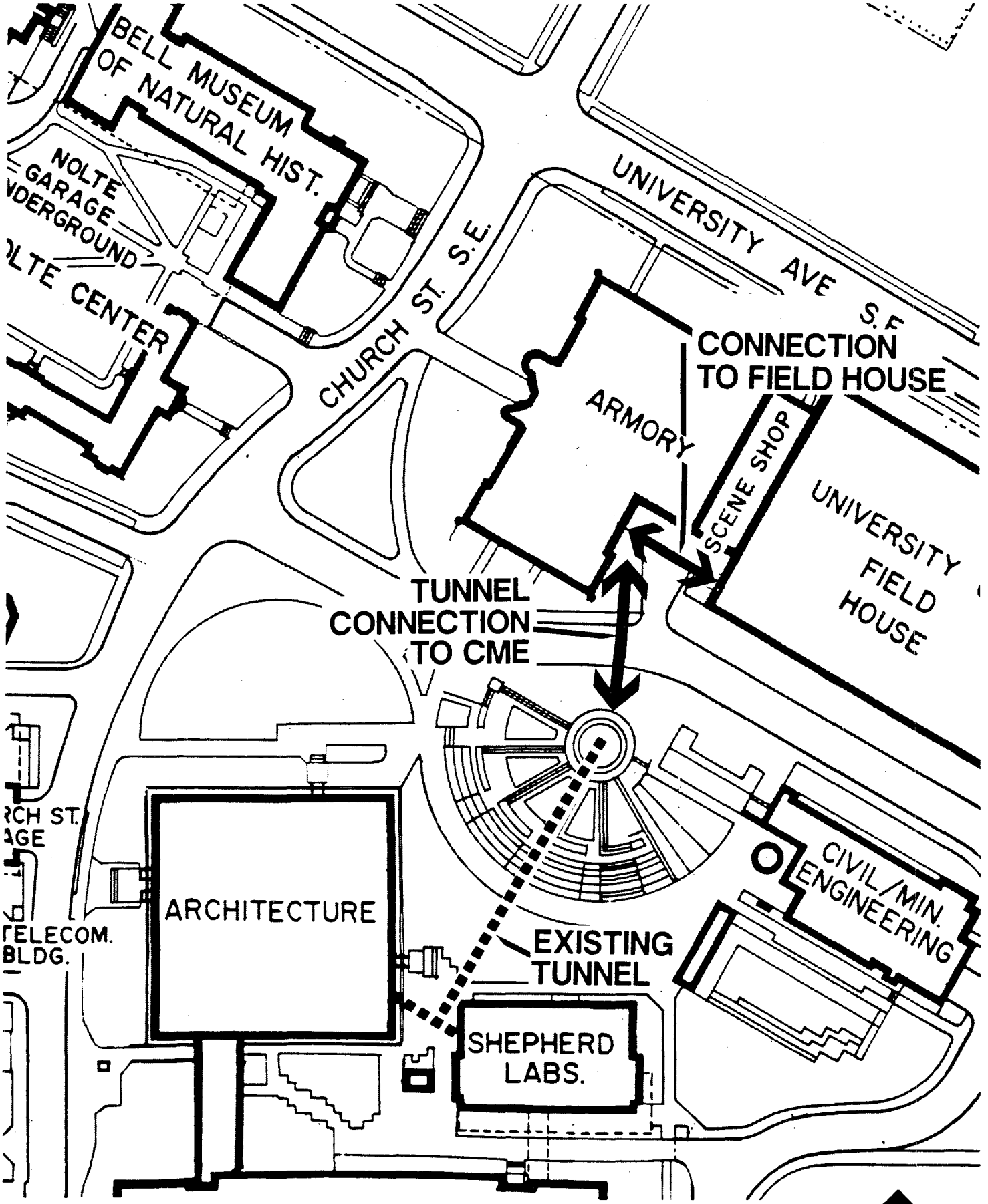


CAMPUS ENTRANCE

Armory Renovation Project

EXHIBIT 1

North
1"=100'



PEDESTRIAN CONNECTIONS

Armory Renovation Project

EXHIBIT 2

VI. GENERAL REQUIREMENTS

VI. GENERAL REQUIREMENTS

CONSERVATION OF RESOURCES

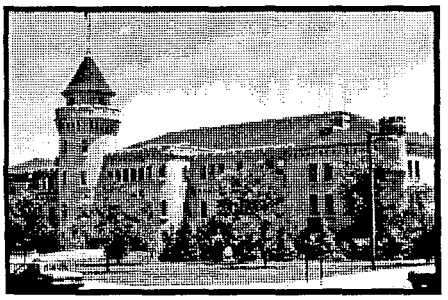
Recognizing its social and economic responsibility, the University has a specific policy that physical facilities be designed with the objective of conserving natural resources, both in initial construction and in operation. Adherence to the State of Minnesota and Federal laws, regulations, and guidelines relative to conservation of natural resources, conservation of energy, and the water and air pollution standards is required in the design, construction, and operation of all facilities of the University. Particularly, systems and materials of construction must be selected to minimize consumption of energy resources. Implementing this policy will require careful design of all construction components and systems to effectively use resources and to balance initial costs versus operating and maintenance costs. Balancing these factors, within a fixed budget, will challenge the ingenuity of professional consultants and University staff. The "University of Minnesota Standards and Procedures for Constructions" offers certain specific guidelines and standards. The architect, however, is not to consider these measures limiting and is encouraged to consider other methods of energy and resource conservation and bring them to the attention of the Physical Planning Office.

LONG RANGE DEVELOPMENT PLAN

The Regents of the University of Minnesota have adopted, in principle, the Long Range Development Plan for the Twin Cities Campus/Minneapolis and have indicated the strategies enumerated therein will be the basis for all future planning decisions for the campus. It will be the architect's responsibility to demonstrate that the building plan conforms to and implements the policies and concepts described in the Long Range Development Plan. The design of the facility and its site is to acknowledge and enhance the campus environment, extend and complement circulation patterns, natural features, and existing related facilities.

BUILDING REQUIREMENTS AND CODES

The facility is to be designed and constructed in conformance with the latest amended edition of the Minnesota State Building Code. The architect is to ascertian and comply with the applicable codes and regulations, such as OSHA and HEW requirements for access by the handicapped. The architect is to comply with the latest edition of the "University of Minnesota Standards and Procedures for Construction". If programmed requirements or other University standards are at variance with codes or regulations, the architect shall notify the University's Physical Planning Office.
This section contains the University of Minnesota Building Code Deficiency Survey and small scale plans of the existing Armory.



ARMORY 5-29-89
15 Church St. S.E.

CONSTRUCTED: 1896
OCCUPANCY TYPE: B-2/A-3
CONSTRUCTION TYPE: IV-HT
ALLOWABLE AREA: 108,000 sq.ft. Actual: 65,364 sq.ft.
NUMBER OF STORIES: Max. 3 Actual: 3
CODE DEFICIENCY RATING: 1

OCCUPANCY TYPE: B-2/A-3

1. Office/Lounge	B-2	30,927 sq.ft.	Occupant Load	310
2. Classroom/Lab.	A-3	7,824 sq.ft.	Occupant Load	392
3. Gymnasium	A-2.1	7,907 sq.ft.	Occupant Load	528
4. Armory/Range	B-2	18,706 sq.ft.	Occupant Load	188
	Total	65,364 sq.ft.		1418

CONSTRUCTION TYPE: IV-HT

Exterior Walls:	4 hr.	Structural Frame:	HT	Partitions/Permanent:	N
Interior Walls:	N	Floor/Ceiling/Floors:	N	Roof/Ceilings/Floors:	HT
Shaft Enclosures:	N	Exterior Doors & Window	N		

FIRE SAFETY:

Access:	3 sides	Sprinkler Protection:	Yes	Area Separations:	N
Fire Alarm:	No	Standpipe Protection:	No		

DEFICIENCIES:

Building Access: 2

1. North and north west entrances thresholds exceed 1/2 inch maximum height.
2. North entrance landing must be sloped (1:20) to accommodate handicapped.
3. Adjust all entrance door opening pressures to a maximum of 8.5 lbf.

Elevator: 0

1. Building is not provided with an elevator. All levels except first floor are inaccessible.
2. Elevator should be provided at the west entrance tower to provide access to all levels of the building.

Egress System: 1

1. All stairways (north, south, center) must be enclosed in a 1 hr. fire rated construction.
2. All stairways (north, south, center, basement) must be provided with handrails on both sides.
3. Guardrails on center stairways must be 42 inches minimum height with no openings exceeding 6 inches.
4. Adjust all stairway tread nosings to eliminate tripping hazard.
5. Provide proper egress signage in all stairways.
6. Provide tactile floor numbers at stairway openings.
7. Remove all storage from under all stairways.
8. All corridor walls and ceilings must upgraded to meet 1 hr. fire rated construction.
9. All doors opening into corridors must be fire rated self-closing assemblies.
10. All glazing and transom openings into corridor must be fixed and fire rated for a 1 hr. time period.
11. Fire rated corridor must extend through second and third floors to connect north and south stairways.
12. The mezzanine level of the gym must have a clear aisleway around the entire perimeter.
13. Guardrail height around mezzanine must be 42 inches minimum.

Fire Safety: 1

1. Install emergency lighting throughout building: stairways, corridors, public space.
2. Install lighted exit signs throughout building to properly mark egress routes.
3. Install fire alarm system throughout building.
4. Install fire department standpipes in all stairways.
5. All openings within 10 ft. of exterior fire escapes must be rated for a 3/4 hr. time period.
6. A 2 hr. occupancy separation must be provided between the main building and the parking garage.
7. A 2 hr. occupancy separation must be provided between the parking garage and the scene & prop shop.
8. Fourth and fifth story levels of the main tower can not be occupied because of improper exiting. These levels must be sealed off.
9. Basement/mechanical area must not be used for storage, all materials must be removed.
10. All storage areas must be separated from the rest of the building by a 1 hr. fire rated construction.
11. All mechanical rooms, shafts and crawl spaces must be separated from the rest of the building by 1 hr. fire rated construction.
12. Provide a second exit from rooms 12,12A,15,16,107,116, and 116A or limit occupancy to less than 50.
13. A 2 hr. area separation must be provide between the scene/prop shop and the field house.
14. The scene/prop shop must be protected by an automatic sprinkler system.

Sanitary Facilities: 1

1. Total number of fixtures required: 10 water closets/urinals: 10 lavatories: 3 water fountains:
2. Total number of fixtures provided: 18 water closets/urinals: 9 lavatories: 4 water fountains:
3. Number of bathrooms provided: 1 women: 1 men: 2 staff:
4. None of the bathrooms are accessible
5. One bathroom for each sex must be made accessible and usable by the physically handicapped.

Electrical: 1

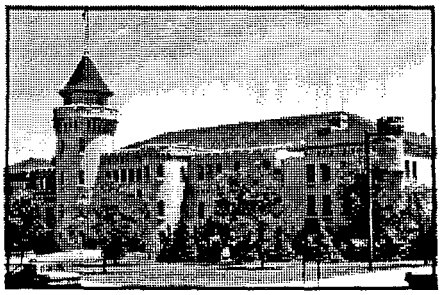
1. Electrical system is at maximum capacity, any addition to system could require system upgrade.

Mechanical: 1

1. Penetration of rated assemblies (corridor walls and ceilings) by supply and return grills must be fire properly fire dampered.
2. All interior spaces without openable windows must be provided with proper ventilation.
3. A flammable waste trap must be provided for the floor drainage system in the parking garage.

General:

1. The building has an overall code deficiency rating of 1 primarily because of open stairways, non-rated corridors and inadaquate exiting from several floors and rooms. The building should be given a high priority for rehabilation.
2. An elevator must be provided to allow access to all levels of the buildings. None of the bathroom facilities are accessible.



ARMORY 5-29-89
15 Church St. S.E.

CONSTRUCTED: 1896
OCCUPANCY TYPE: B-2/A-3 (Office/Classroom)
ACCESSIBILITY RATING: 0
Building Approach: 1
Elevator: 0
Bathrooms: 0

BUILDING APPROACH: 1
1. Public approach to the building is accessible with curb cuts at both Church St. and Pillsbury Dr.
2. Proper entry slope is available at Pillsbury Dr. entrance (south).
3. One handicapped parking space is provided on site at the east side of the building.

ENTRANCES: 1
1. All entrance door opening pressures exceed maximum allowable 8.5 lbf.
2. All entrance doors do not provide the required space at the latch side of the doors.
3. North entrance landing should be properly sloped (1:20) to provide handicapped access.
4. Recommend automatic opening device on south entrance.

DOORS: 1
1. All public doors must be provided with hardware that can be operated by the physically handicapped.
2. All bathroom and several classroom door widths are less then the required 32 inch clear opening width.

ELEVATOR: 0
1. Building is not provided with an elevator, all floors except the first floor are inaccessible.
2. An elevator should be provided at the west entrance tower to provide access to all levels .

SANITATION FACILITIES: 0
1. Total number of fixtures required: 10 water closets/urinals: 10 lavatories: 3 water fountains:
2. Total number of fixtures provided: 18 water closets/urinals: 9 lavatories: 4 water fountains:
3. Number of bathrooms provided: 1 women: 1 men: 2 staff:
4. None of the bathrooms are accessible or usable by the handicapped.
5. One bathroom for each sex must be made accessible and usable by the handicapped.

STAIRWAYS: 1
1. Handrails on all stairways are too large for proper grippability. Maximum handrail size is 2 inches.
2. Adjust all stairway tread nosings to eliminate tripping hazard.
3. Floor number shall be tactilely identified by raised or recessed numbers at stairway openings.

IDENTIFICATION: 0
1. All areas normally used by the general public shall have tactile identification, such as raised or recessed letters, labels, or plaques.
2. A building directory should be provided in the lobby or the main floor to indicate accessible bathrooms.
3. Accessible bathroom facilities shall be properly identified at the bathroom entrance.

TELEPHONES: 0
1. At least one accessible public telephone should be provided on the main entrance floor.

WATER FOUNTAINS: 0
1. At least two accessible water fountains should be provided. One located on the main floor lobby and the other located in the access route of a classroom level.

HANDICAPPED ACCESS

The University has a legal obligation to make all of its programs accessible to individuals with disabilities. It also has an obligation, when constructing new facilities or remodeling facilities, to bring them (at a minimum) into compliance with the requirements of the Minnesota State Building Code, the latest edition of the ANSI handicapped access standards, and any specific access related requirements in the University's Standards and Procedures for Construction manual.

Codes and regulations typically address access into a building, movement within a building, safety features, toilet rooms, and elevators. With the exception of assembly spaces, the codes and regulations are largely silent about what happens at the point of destination. Once a person with a disability has reached the destination (be it work place, laboratory station, or desk), the using department has responsibility for determining how program access is achieved. It is the using department's responsibility to carefully assess the physical accommodations that are needed, as part of the construction project, to make their programs accessible.

SPACE UTILIZATION

The architect, during the course of the design, is to review the square footages previously developed for individual spaces against how the necessary functions can be organized in the space. The intent of this is to adequately meet the functional requirements rather than repetition of a non-functioning existing condition. Reductions or increases in square footage for a particular activity should not be made without the concurrency of the Physical Planning Office.

The architect is encouraged to bring to the attention of the Physical Planning Office areas where space can be utilized more fully if various functions can be combined or shared.

PROJECT BUDGET

Construction Cost	$6,310,000
Non-Construction Cost	$2,482,000 *
Total Project Cost	$8,792,000

* Includes allowance of $200,000 budgeted for surface landscape work. Includes furnishing and equipment allowance of $240,000. Also includes allowance of $300,000 for moving and phased leasing during construction.

PROJECT SCHEDULE

Building Program Complete	September 1990
Planning Funding	February 1991
Architect Selected	February 1991
Schematic Design Complete	June 1991
Regents Approval	July 1991
Construction Funding	October 1991
Design Development Complete	December 1991
Construction Documents Complete	April 1992
Bids Advertised	April 1992
Bids Received	May 1992
Construction Contracts Awarded	June 1992
Project Substantially Complete	December 1993